

Getting Ready for the 2017 Florida Standards Assessment (FSA)



Grade 7 Mathematics Answer Key

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**Department of Mathematics and Science
Division of Academics
Miami-Dade County Public Schools**

**Compiled by Miami-Dade County Public Schools*

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.RP.1.1																
1.	<p>Writes both unit rates correctly:</p> <p><u>ANY OF THE BELOW TWO ANSWERS ARE CORRECT:</u></p> <div style="text-align: center; margin: 10px 0;"> <table style="border: none; margin: auto;"> <tr> <td style="border: 1px dashed black; padding: 5px; text-align: center;">$1\frac{1}{2}$</td> <td style="padding: 0 10px;">•</td> <td style="border: 1px dashed black; padding: 5px; text-align: center;">$\frac{1}{2}$</td> </tr> <tr> <td style="border: none;">•</td> <td style="padding: 0 10px;">•</td> <td style="border: none;"></td> </tr> <tr> <td style="border: 1px dashed black; padding: 5px; text-align: center;">$\frac{3}{2}$</td> <td style="padding: 0 10px;">•</td> <td style="border: 1px dashed black; padding: 5px; text-align: center;">$\frac{1}{2}$</td> </tr> <tr> <td style="border: none;">•</td> <td style="padding: 0 10px;">•</td> <td style="border: none;"></td> </tr> <tr> <td style="border: 1px dashed black; padding: 5px; text-align: center;">3</td> <td style="padding: 0 10px;">•</td> <td style="border: 1px dashed black; padding: 5px; text-align: center;">1</td> </tr> </table> </div> <p style="background-color: yellow; padding: 5px;"><i>This question is a possible sample of a graphic response-drag and drop technology-enhanced item.</i></p>	$1\frac{1}{2}$	•	$\frac{1}{2}$	•	•		$\frac{3}{2}$	•	$\frac{1}{2}$	•	•		3	•	1
$1\frac{1}{2}$	•	$\frac{1}{2}$														
•	•															
$\frac{3}{2}$	•	$\frac{1}{2}$														
•	•															
3	•	1														
2.	<p>Explains that the smaller gear turns three times for each one turn of the larger gear and the larger gear turns $\frac{1}{3}$ time for each one turn of the smaller gear.</p>															
3.	<p>D</p>															
4.	<p>A. 300 gallons every 1 hour B. 300 gallons every 1 hour C. They both flow at the same rate, which is 300 gallons every hour.</p>															
5.	<p>The student writes a unit rate of 1 to 3 and explains, “The area of the old patio is $\frac{1}{3}$ the area of the new patio.” Or “The area of the new patio is 3 times the area of the old patio.”</p>															

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.RP.1.1 FSA Practice									
1.	<p>A. The student writes $\frac{3}{4} : \frac{2}{3}$ for the ratio of red to blue ribbon.</p> <p>B. Unit rate of</p> <div style="text-align: center; margin: 10px 0;"> 9 to 8 </div> <p style="background-color: yellow; text-align: center; margin: 5px 0;"><i>This question is a possible sample of a graphic response-drag and drop technology-enhanced item.</i></p> <p>C. The student writes $\frac{2}{3} : \frac{3}{4}$ for the ratio of blue to red ribbon.</p> <p>D. Unit rate of</p> <div style="text-align: center; margin: 10px 0;"> 8 to 9 </div> <p style="background-color: yellow; text-align: center; margin: 5px 0;"><i>This question is a possible sample of a graphic response-drag and drop technology-enhanced item.</i></p>								
2.	<p>A. We can create a table that shows how far each person runs for a certain number of laps:</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Number of laps</th> <th style="padding: 5px;">Number of km</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">$\frac{2}{5}$</td> </tr> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">$\frac{4}{5}$</td> </tr> <tr> <td style="padding: 5px;">3</td> <td style="padding: 5px;">$\frac{6}{5}$</td> </tr> </tbody> </table> <p style="margin: 10px 0;">We can see from the table that 1 km is exactly half way between 2 and 3 laps. So it will take 2.5 laps to run 1 km.</p> <p style="margin: 10px 0;">Since it takes Angela 2 minutes to run 1 lap, she will take</p> <div style="text-align: center; margin: 10px 0; background-color: #e6f2ff; padding: 10px;"> $\frac{2.5 \text{ laps}}{1 \text{ km}} \cdot \frac{2 \text{ minutes}}{1 \text{ lap}} = \frac{5 \text{ minutes}}{1 \text{ km}}$ </div> <p style="margin: 10px 0;">So it takes Angela 5 minutes to run 1 km.</p> <p style="margin: 10px 0;">Since it takes Jayden 5 minutes to runs 3 laps, she runs 1 lap in 53 minutes. Thus, it takes Jayden</p> <div style="text-align: center; margin: 10px 0; background-color: #e6f2ff; padding: 10px;"> $\frac{2.5 \text{ laps}}{1 \text{ km}} \cdot \frac{5 \text{ minutes}}{3 \text{ laps}} = \frac{5}{2} \cdot \frac{5}{3} \text{ minutes/km} = \frac{25}{6} \text{ minutes/km} = 4 \frac{1}{6} \text{ minutes/km}$ </div> <p style="margin: 10px 0;">So it takes Jayden $4 \frac{1}{6}$ minutes to run 1 km.</p>	Number of laps	Number of km	1	$\frac{2}{5}$	2	$\frac{4}{5}$	3	$\frac{6}{5}$
Number of laps	Number of km								
1	$\frac{2}{5}$								
2	$\frac{4}{5}$								
3	$\frac{6}{5}$								

7th Grade MAFS Spiral Review Packet-Answer Key

	<p>B. Angela runs 1 lap in 2 minutes so she runs $\frac{1}{2}$ lap in 1 minute. Since 1 lap is $\frac{2}{5}$ km, $\frac{1}{2}$ lap is $\frac{1}{5}$ km.</p> <p>Therefore she runs $\frac{1}{5}$ km in one minute.</p> <p>Since Jayden runs 1 lap in $\frac{5}{3}$ minutes, he will run $\frac{3}{5}$ laps in 1 minute.</p> <p>Since Jayden runs 1 km in $\frac{25}{6}$ minutes.</p> <p>Therefore he will run $\frac{6}{25}$ km in one minute.</p> <p>C. Jayden runs the same distance in less time than Angela (alternatively, Jayden runs farther in the same time than Angela), so Jayden is running faster than Angela.</p>
3.	<p>Her speed is 8 minutes per $\frac{2}{3}$ miles. So, 8 divided by $\frac{2}{3} = 12$ minutes per mile. It will take Molly 12 minutes.</p>
4.	<p>A. 6:1 6 cups of sugar</p> <p>B. The quantity of each ingredient in the original recipe needs to be multiplied by 8 in order for all the ratios to be the same in the new mixture.</p> <p>C. $\frac{3}{8} : \frac{1}{8}$ 3 cups of blueberries</p>
5.	<p>A. 2 cups of sugar is needed if there is 1 cup of blueberries.</p> <p>B. $\frac{1}{6}$ cup of butter is needed if there is one cup of sugar.</p> <p>C. $\frac{1}{2}$ cup of blueberries is needed if there is one cup of sugar.</p>

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	MAFS.7.RP.1.2										
1.	<p>A, C, F</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p> <p>MAFS.7.RP.1.2a</p>										
2.	<p>Part A:</p> <div style="text-align: center;"> <table border="1" style="margin: 10px auto;"> <caption>Data points from the scatter plot</caption> <thead> <tr> <th>Number of Teachers</th> <th>Number of Students</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>65</td> </tr> <tr> <td>6</td> <td>135</td> </tr> <tr> <td>7</td> <td>195</td> </tr> <tr> <td>9</td> <td>205</td> </tr> </tbody> </table> </div> <p><i>This question is a possible sample of graphic response-drawing technology-enhanced item.</i></p> <p>Part B: The student correctly writes and graphs each ratio. The student references the graph and acknowledges that the points do not fall in a straight line *(if it did it must also pass through the origin) which means that number of teachers is not proportional to the number of students. The student may also calculate unit rates but demonstrates an understanding of the graph of a proportional relationship. *Note: The graph of a proportional relationship is a straight line that passes through the origin.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>MAFS.7.RP.1.2a</p>	Number of Teachers	Number of Students	3	65	6	135	7	195	9	205
Number of Teachers	Number of Students										
3	65										
6	135										
7	195										
9	205										
3.	<p>0.625</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p> <p>MAFS.7.RP.1.2b</p>										
4.	<p>0.75</p> <p><i>This question is a possible sample of a graphic response-drag and drop technology-enhanced item.</i></p> <p>MAFS.7.RP.1.2c</p>										
5.	<p>A, C, D</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p> <p>MAFS.7.RP.1.2d</p>										

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.RP.1.2-FSA Practice	
1.	<p>The two quantities are not proportionally related. The unit rate (in dollars per hour) differs from each rental time, and therefore, determines the rates are not proportional.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>MAFS.7.RP.1.2a</p>
2.	<p>D</p> <p>MAFS.7.RP.1.2b</p>
3.	<p>C, E</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p> <p>MAFS.7.RP.1.2b</p>
4.	<p>C</p> <p>MAFS.7.RP.1.2c</p>
5.	<p>A. The student explains that the ordered pair (0, 0) means that when Sandy babysits for zero hours, she earns zero dollars. B. (6, 45) means that Sandy earns \$45 for 6 hours of babysitting. C. Sandy charges \$7.50 per hour.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>MAFS.7.RP.1.2d</p>

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.RP.1.3
1.	Part A: 4 Part B: 5 Part C: 17 Part D: A
2.	Part A: \$21 Part B: \$30.21
3.	A. Tiffany will have to pay about \$16.97 in taxes. B. The student calculates a total clothing cost of \$261 and a tax of \$16.97 for a total purchase price of \$277.97. The student is able to explain that there will not be enough money for the purchase and can determine that Tiffany will be short of money by \$2.97. <i>This question is a possible sample of an open response technology-enhanced item.</i>
4.	The student subtracts \$3.44 from \$3.75 and then determines the percent that this difference, \$0.31, represents of the original price. The student explains that gasoline prices dropped 8.3%. <i>This question is a possible sample of an open response technology-enhanced item.</i>
5.	A. Fee = \$4.75 B. Kennedy will receive \$45.25.
6.	2 years

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.RP.1.3-FSA Practice	
1.	Part A: \$12.50 Part B: B
2.	A. $2\frac{2}{3}$ cups of flour will be needed. B. 64 cookies
3.	\$120
4.	63 computers 30% of 48 computers is 14.4 computers. Since you can't sell 0.4 of a computer, you should round up to 15 computers. So, $48 + 15 = 63$ computers that the sales team will need to sell. <i>This question is a possible sample of an open response technology-enhanced item.</i>
5.	Part A: \$46.80 $30 \times 2 = \$60$ (cost for both) $60 \times 0.25 = \$15$ (discount amount) $60 - 15 = \$45$ (sale price) $45 \times 0.04 = \$1.80$ (tax amount) $45 + 1.8 = \$46.80$ (sale price with tax) Part B: Alexandra will make 12.5% profit on each sweatshirt. $30 \times 0.55 = \$16.50$ (discount amount) $30 - 16.50 = \$13.50$ (sale price) $13.50 - 12.00 = \$1.50$ (profit) $\frac{\$1.50}{\$12} = 0.125 = 12.5\%$
6.	$A = (600) \cdot (0.02) \cdot (1.5)$ <i>or</i> $A = (600) \cdot (0.02) \cdot \left(1\frac{1}{2}\right)$ <i>This question is a possible sample of an equation editor response technology-enhanced item.</i>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.EE.1.1	
1.	<p>B, E</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p>
2.	<p>Equivalent Expressions: B,C,E</p> <p>Explanations:</p> <p><input type="checkbox"/> A. $6(5x - 3)$: No, because you can't subtract the 8-2 first. You have to use the Distributive Property first.</p> <p><input checked="" type="checkbox"/> B. <u>$8 - 10x + 6$: Yes, because you distribute the negative two and drop the parentheses.</u></p> <p><input checked="" type="checkbox"/> C. <u>$8 - (10x - 6)$: Yes, because you can distribute a positive two but you have to keep the parentheses because you still have to distribute a negative.</u></p> <p><input type="checkbox"/> D. $8 - 10x - 6$: No, because it won't be minus six because I distributed a negative two times a negative three, which gives me positive or plus six.</p> <p><input checked="" type="checkbox"/> E. <u>$-10x + 14$: Yes, because after you distribute, you can combine or add eight and six to make 14.</u></p>
3.	<p>A, D, E</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p>
4.	<p>$15x - \frac{6}{7}$</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p>
5.	<p>A. $2(2x + 5)$ B. $3(3x - 1)$</p>

7th Grade MAFS Spiral Review Packet-Answer Key

6.

A.

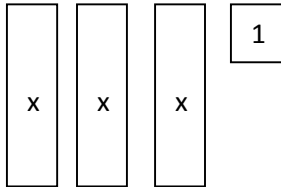
Hugo: x

Patricia: $2x + 3$

Sun: $x - 2$

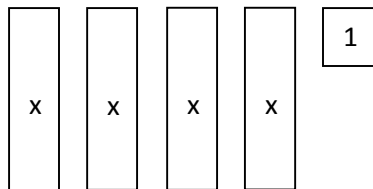
B.

$$3x + 1$$



C.

$$4x + 1$$



7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.EE.1.1-FSA Practice	
1.	D
2.	<p>Equivalent: A, C, D</p> <p>Explanations:</p> <p><input checked="" type="checkbox"/> A. Yes, because adding zero does not change the value of the expression. (Associative and Inverse Properties of Addition)</p> <p><input type="checkbox"/> B. No, because -1.8 was only factored out of the first term. (Distributive Property)</p> <p><input checked="" type="checkbox"/> C. Yes, because multiplying the original expression by one does not change the value. (Commutative, Inverse and Identity Properties of Multiplication)</p> <p><input checked="" type="checkbox"/> D. Yes, because adding zero does not change the original expression. (Zero Property of Multiplication)</p> <p><input type="checkbox"/> E. No, because -1 was only factored out of the first term. (Distributive Property)</p>
3.	12x -74
4.	Yes
5.	$\frac{1}{7}x + 12$ <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.EE.1.2	
1.	<p>A, B, E</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p>
2.	<p>The student explains that the first expression represents the total cost of ice cream sold including the price and quantity of each item sold.</p>
3.	<p>When comparing the two versions of the expression, the student may explain that the first expression shows the product of each item’s cost and quantity sold. In the second expression, items that sold the same quantity are combined so there are fewer terms.</p>
4.	<p>Since the expression shows the sum of the two widths (x) and two lengths ($3x + 2$), the expression represents the perimeter of the rectangle.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
5.	<p>The two expressions are equivalent.</p> <p>By using the Commutative and Associative Properties of Addition,</p> <p>$x + (3x+2) + x + (3x+2) = (x + 3x + x + 3x) + (2+2) = 8x + 4.$</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
6.	<p>Abbey's expression shows that an alternative way to find the perimeter is to multiply the width by 8 and add 4 since $8x + 4$ is equivalent to $x + (3x+2) + x + (3x+2).$</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.EE.1.2-FSA Practice	
1.	<p>B: $9(n - 8) = 9n - 72$ Others: $9n - 8$</p>
2.	<p>When you simplify both expressions by applying the Distributive Property, you get the equivalent expression, $5y-10$.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
3.	<p>Here are some possible expressions:</p> <p style="margin-left: 40px;">$14-2x$</p> <p style="margin-left: 40px;">$2(7-x)$</p> <p style="margin-left: 40px;">$14-x-x$</p> <p style="margin-left: 40px;">$10-2x+4$</p> <p style="margin-left: 40px;">$-2x+14$</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p>
4.	<p>In the expression $14-2x$, the 14 represents the number of tickets Malia started with since the value of the expression is 14 when $x = 0$. The -2 represents the number of tickets she spends per ride. $2x$ represents the number of tickets she has to subtract from her initial amount after riding x rides.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
5.	<p>In the expression $2(7-x)$, the 7 represents the total number of rides Malia can go on. $(7-x)$ represents the number of rides she has left and the 2 represents the number of tickets required for each ride Malia has left.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
6.	<p>A, B, & C: $6a + 4b + 2$ D: $6a + 4b + 3$</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p>

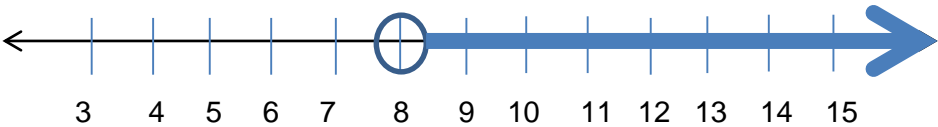
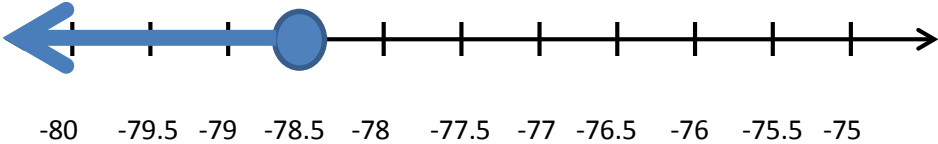
7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.EE.2.3
1.	Part A: \$4905 Part B: 5929 <i>This question is a possible sample of an equation editor response technology-enhanced item.</i>
2.	Part A: 2.5 miles Part B: 40 minutes
3.	Part A: B Part B: C
4.	The student indicates that it is reasonable to say that Alexa has about \$5000 in her account. The student offers an explanation such as, "I estimated by rounding each amount in the problem and then mentally calculating $\\$4300 + (\\$900 - \\$300) = \\$4300 + \\$600 = \\4900 which is about \$5000." <i>This question is a possible sample of an open response technology-enhanced item.</i>
5.	\$2.96

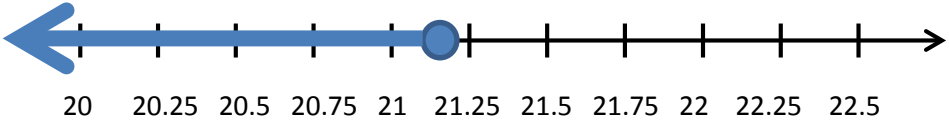
7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.EE.2.3-FSA Practice																					
1.	<p>The student correctly calculates the new production rate (640 reels per day) and determines that the company will not be able to meet an order of 20,000 reels in April since it can only produce 19,200 reels in 30 days.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>																				
2.	<p>The student determines that it will take 31.25 or 32 days to meet the order.</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p>																				
3.	<p>The student determines that Brittany did not figure out the bill correctly. The student determines the correct bill to be \$48.45. The student calculates:</p> <ul style="list-style-type: none"> • $1.065[\\$53.52(0.85)]=\\$48.45,$ • $\\$53.52 (0.85) = x,$ then $1.065x = \\$48.45,$ or • $\\$53.52- \\$53.52(0.15) = x,$ then $x + 0.065x = \\$48.45.$ <p>The student calculates the discounted price of the meal (\$45.49) and determines that Brittany should not get a price lower than that after adding tax and, therefore, concludes that Brittany is wrong.</p>																				
4.	<p>Jordan: $\\$200 - (\\$40 \text{ savings}) = \\$160.$ Then, $\\$160 - (\\$100 \text{ headphones} + \\$40 \text{ two shirts} + \\$5 \text{ tax})$ is \$15, which is about \$10.</p>																				
5.	<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr style="background-color: #cccccc;"> <th style="padding: 5px;">Ingredients</th> <th style="padding: 5px;">Batch 1</th> <th style="padding: 5px;">Batch 2</th> <th style="padding: 5px;">Batch 3</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Salt (cups)</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">2</td> <td style="text-align: center; padding: 5px;">4</td> </tr> <tr> <td style="padding: 5px;">Pepper (cups)</td> <td style="text-align: center; padding: 5px;">$\frac{1}{2}$</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">2</td> </tr> <tr> <td style="padding: 5px;">Garlic powder (cups)</td> <td style="text-align: center; padding: 5px;">$\frac{1}{4}$</td> <td style="text-align: center; padding: 5px;">$\frac{1}{2}$</td> <td style="text-align: center; padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;">Onion powder (cups)</td> <td style="text-align: center; padding: 5px;">$\frac{1}{4}$</td> <td style="text-align: center; padding: 5px;">$\frac{1}{2}$</td> <td style="text-align: center; padding: 5px;">1</td> </tr> </tbody> </table>	Ingredients	Batch 1	Batch 2	Batch 3	Salt (cups)	1	2	4	Pepper (cups)	$\frac{1}{2}$	1	2	Garlic powder (cups)	$\frac{1}{4}$	$\frac{1}{2}$	1	Onion powder (cups)	$\frac{1}{4}$	$\frac{1}{2}$	1
Ingredients	Batch 1	Batch 2	Batch 3																		
Salt (cups)	1	2	4																		
Pepper (cups)	$\frac{1}{2}$	1	2																		
Garlic powder (cups)	$\frac{1}{4}$	$\frac{1}{2}$	1																		
Onion powder (cups)	$\frac{1}{4}$	$\frac{1}{2}$	1																		

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.EE.2.4
1.	<p>C, D</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p> <p>MAFS.7.EE.2.4a</p>
2.	<p>B</p> <p>MAFS.7.EE.2.4a</p>
3.	<p>\$7</p> <p>MAFS.7.EE.2.4a</p>
4.	<p>A. The student writes the inequality as $200 - 15d < 80$.</p> <p><i>This question is a possible sample of equation editor response technology-enhanced item.</i></p> <p>B. $d > 8$</p> <p>C. The student explains that more than eight days have passed.</p>  <p><i>This question is a possible sample of a graphic response technology-enhanced item.</i></p> <p>MAFS.7.EE.2.4b</p>
5.	<p>A. The student writes the inequality, $\frac{9}{5}C + 32 \leq -109.3$.</p> <p><i>This question is a possible sample of equation editor response technology-enhanced item.</i></p> <p>B. $C \leq -78$</p> <p>C. Scales the number line appropriately, and graphs the solutions using a closed dot at -78.5 and shading to the left.</p>  <p><i>This question is a possible sample of a graphic response technology-enhanced item.</i></p> <p>MAFS.7.EE.2.4b</p>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.EE.2.4-FSA Practice	
1.	35 minutes MAFS.7.EE.2.4a
2.	\$2.25 MAFS.7.EE.2.4a
3.	A. C, D B. x = 14 MAFS.7.EE.2.4a
4.	<p>A. The solution is $x \leq 21.22...$ or $21.22... \geq x$.</p> <p>B. The student explains that Aaron can buy no more than 21 songs (or “21 or fewer”).</p> <p>The student may clarify that Aaron can buy between zero and 21 songs after buying the game for \$3.99.</p> <p>The student may add clarifying comments such as:</p> <ul style="list-style-type: none"> • It has to be greater than zero because you can’t buy negative songs. • It would have to be whole numbers, because you can’t buy parts of songs. <div style="text-align: center;">  <p style="text-align: center;">20 20.25 20.5 20.75 21 21.25 21.5 21.75 22 22.25 22.5</p> </div> <p><i>This question is a possible sample of a graphic response technology-enhanced item.</i></p> <p>MAFS.7.EE.2.4b</p>
5.	<p>A. $3w + 15 \geq 50$</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p> <p>B. $w \geq 11\frac{2}{3}$</p> <p>C. Since we cannot (or should not) wash just $\frac{2}{3}$ of a window, it makes sense that we round this number up to 12.</p> <p>Thus, Jonathan must wash at least 12 windows in order to purchase the sports set.</p> <p>Note that this is just the minimum number he must wash, and washing more would be in his benefit, as he can purchase more sports accessories.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>

7th Grade MAFS Spiral Review Packet-Answer Key

D. Using this information, and the fact that only whole numbers make sense in this context, our solution set can be graphed as follows:



This question is a possible sample of a graphic response technology-enhanced item.

There are other possible graphs, as the right hand endpoint can be determined based on a discussion based on what would be "realistic" based on, for example, how many neighbors Jonathan has, how many windows are in each house, and how much time he has to wash windows.

The point of the question is to have students realize that a context limits the solution set even when other numbers satisfies the accompanying inequality.

MAFS.7.EE.2.4b

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.NS.1.1
1.	B MAFS.7.NS.1.1a
2.	<p>Least Value: $n - p$</p> <p>Greatest Value: $p - n$</p> <p><i>This question is a possible sample of an editing task choice technology-enhanced item.</i></p> <p>MAFS.7.NS.1b, c</p>
3.	<p>The student describes the second dive as -15 feet.</p> <p>The student explains that -12 feet represents the first dive and 3 feet deeper would mean moving down three more feet, ending up at a depth of 15 feet or -15 feet.</p> <p>MAFS.7.NS.1c</p> <div style="text-align: center;"> </div> <p><i>This question is a possible sample of a graphic response technology-enhanced item.</i></p>
4.	<p>B, D, F</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.1d</p>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.NS.1.1-FSA Practice	
1.	<div style="border: 1px solid black; width: 200px; height: 150px; margin-bottom: 10px;"> </div> <p>Part A: Some students put the X just above or just below the (-10) line, which is acceptable. The placement of the X is flexible so long as the X clearly indicates the (-10) line.</p> <p>It should not be floating between lines or so large that it may indicate another line.</p> <p>Part B: -50</p> <p>Part C: 20 feet</p> <p>MAFS.7.NS.1.1b</p> <p>Part D: 0. Above the surface is positive and below the surface is negative, so the surface must be 0.</p> <p style="background-color: yellow;"><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.1a</p>
2.	<p>A. Points F and H - Since Point F = -6 and Point H = 6, then $-6 + 6 = 0$.</p> <p style="background-color: yellow;"><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.1a</p> <p>B. The equation $E - I$ represents the distance between the points E and I.</p> $d = -9 - 8 $ <p style="background-color: yellow;"><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.1c</p>

7th Grade MAFS Spiral Review Packet-Answer Key

	<p>C. The distance between Point E and Point I is 17 units. Point E = -9 and Point I = -9, then:</p> $d = -9 - 8 $ $d = -9 + (-8) $ $d = -17 $ $d = 17$ <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.1c</p> <p>D. The value of Ethan's expression is 8.</p> $ -2 + 6 = 2 + 6 = 8$ <p>Since Point G is -2, the distance -2 is from 0 is its absolute value which is 2. Since Point H is 6, the distance 6 is from 0 is its absolute value which is 6.</p> <p>If you add their absolute values together, then you will have the distance the two numbers are from each other.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.1b</p>
3.	<p>B and D</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.1c</p>
4.	<p>2 and $\frac{-3}{4}$</p> <p><i>This question is a possible sample of an editing task choice technology-enhanced item.</i></p> <p>MAFS.7.NS.1.1d</p>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.NS.1.2	
1.	<p>A, C, D</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.2a</p>
2.	<p>C</p> <p>MAFS.7.NS.1.2b</p>
3.	<p>A, D, E, F</p> <p><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.2c</p>
4.	<p>A. $0.\overline{83}$</p> <p>B. 0</p> <p>C. $\frac{5}{6}$ and $\frac{0}{17}$ are rational numbers because they are fractions of integers without a zero denominator or because their decimal representations either terminate or repeat.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.2d</p>
5.	<p>A. $-\frac{7}{48}$</p> <div style="text-align: center;"> <p style="text-align: center;">Original Water Level (in inches)</p> <p style="text-align: center;">$-\frac{7}{48}$ inches</p> </div> <p><i>This question is a possible sample of a graphic response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.2a</p> <p>B. The water level drops $1\frac{1}{48}$ inches over a 7 year period.</p> <p>MAFS.7.NS.1.2a</p>

7th Grade MAFS Spiral Review Packet-Answer Key

C.

$$\begin{array}{r}
 0.020833 \\
 48 \overline{) 1.000000} \\
 \underline{- 96} \\
 40 \\
 \underline{- 00} \\
 400 \\
 \underline{- 384} \\
 160 \\
 \underline{- 144} \\
 160
 \end{array}$$

$-1\frac{1}{48}$ written in decimal form is a repeating decimal because when converted using long division, the remainder repeats after the hundred-thousandths place.

MAFS.7.NS.1.2d

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.NS.1.2-FSA Practice																													
1.	<p>The student explains the result in terms of repeated addition, (e.g., the student says that $2 \times \left(-\frac{4}{5}\right) = -\frac{4}{5} + \left(-\frac{4}{5}\right) = -\frac{8}{5}$).</p> <p>The student uses the Additive Inverse and Distributive Properties to solve the problem. The student explains that $2 \left(-\frac{4}{5} + \frac{4}{5}\right)$ should equal zero since $-\frac{4}{5}$ and $\frac{4}{5}$ are opposites and since $2 \times 0 = 0$.</p> <p>Use of the Distributive Property shows that $2 \left(-\frac{4}{5} + \frac{4}{5}\right) = 2 \left(-\frac{4}{5}\right) + 2 \left(\frac{4}{5}\right) = 2 \left(-\frac{4}{5}\right) + \frac{8}{5}$.</p> <p>In order for this to equal zero, $2 \left(-\frac{4}{5}\right)$ should be the opposite of $\frac{8}{5}$. Therefore, $2 \left(-\frac{4}{5}\right)$ must equal $-\frac{8}{5}$.</p> <p style="background-color: yellow;"><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.2a</p>																												
2.	<p>B, D, E</p> <p style="background-color: yellow;"><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.2b</p>																												
3.	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #cccccc;"> <th style="width: 5%;"></th> <th style="width: 15%;"></th> <th style="width: 15%;">Equivalent</th> <th style="width: 65%;">Explanation</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">A.</td> <td>$\frac{1}{-4}$</td> <td><input checked="" type="checkbox"/></td> <td style="text-align: left;">It is equivalent because it also equals $-\frac{1}{4}$ or -0.25; $-5 \div 20$ simplifies to $-\frac{1}{4}$, which can also be written as $\frac{1}{-4}$.</td> </tr> <tr> <td style="text-align: left;">B.</td> <td>$-\frac{20}{5}$</td> <td><input type="checkbox"/></td> <td style="text-align: left;">It is not equivalent because $-5 \div 20 = -\frac{1}{4}$ but $-\frac{20}{5} = -4$.</td> </tr> <tr> <td style="text-align: left;">C.</td> <td>-4</td> <td><input type="checkbox"/></td> <td style="text-align: left;">It is not equivalent because $-\frac{1}{4}$ does not equal -4.</td> </tr> <tr> <td style="text-align: left;">D.</td> <td>$-\left(\frac{-5}{-20}\right)$</td> <td><input checked="" type="checkbox"/></td> <td style="text-align: left;">It is equivalent because the two negatives in the parentheses make the fraction positive, so the negative on the outside of the parentheses makes the whole expression negative.</td> </tr> <tr> <td style="text-align: left;">E.</td> <td>$-\frac{1}{4}$</td> <td><input checked="" type="checkbox"/></td> <td style="text-align: left;">It is equivalent because the negative of a fraction can be in the numerator or the denominator or out in front of the whole fraction – those are all equal.</td> </tr> <tr> <td style="text-align: left;">F.</td> <td>$\frac{-5}{-20}$</td> <td><input type="checkbox"/></td> <td style="text-align: left;">It is not equivalent because $-5 \div 20$ is negative but $\frac{-5}{-20}$ is positive.</td> </tr> </tbody> </table> <p style="background-color: yellow;"><i>This question is a possible sample of a multi-select response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.2b</p>			Equivalent	Explanation	A.	$\frac{1}{-4}$	<input checked="" type="checkbox"/>	It is equivalent because it also equals $-\frac{1}{4}$ or -0.25 ; $-5 \div 20$ simplifies to $-\frac{1}{4}$, which can also be written as $\frac{1}{-4}$.	B.	$-\frac{20}{5}$	<input type="checkbox"/>	It is not equivalent because $-5 \div 20 = -\frac{1}{4}$ but $-\frac{20}{5} = -4$.	C.	-4	<input type="checkbox"/>	It is not equivalent because $-\frac{1}{4}$ does not equal -4 .	D.	$-\left(\frac{-5}{-20}\right)$	<input checked="" type="checkbox"/>	It is equivalent because the two negatives in the parentheses make the fraction positive, so the negative on the outside of the parentheses makes the whole expression negative.	E.	$-\frac{1}{4}$	<input checked="" type="checkbox"/>	It is equivalent because the negative of a fraction can be in the numerator or the denominator or out in front of the whole fraction – those are all equal.	F.	$\frac{-5}{-20}$	<input type="checkbox"/>	It is not equivalent because $-5 \div 20$ is negative but $\frac{-5}{-20}$ is positive.
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7th Grade MAFS Spiral Review Packet-Answer Key

4.	<p>A. The student correctly rewrites $(1\frac{1}{3} \cdot 2\frac{1}{2}) \cdot 3$ as $(1\frac{1}{3} \cdot 3) \cdot 2\frac{1}{2}$ and finds the product of $(1\frac{1}{3} \cdot 3)$ mentally.</p> <p>The student correctly finds the product of 4 and $2\frac{1}{2}$ and indicates a use of the <u>Commutative and Associative Properties</u> to reorder and regroup the factors to get an answer of 10.</p> <p>B. The student rewrites $7 \cdot 2\frac{4}{5} + 7 \cdot 3\frac{1}{5}$ as $7(2\frac{4}{5} + 3\frac{1}{5})$ and correctly completes the calculation by mentally adding $2\frac{4}{5}$ and $3\frac{1}{5}$ and then multiplying the sum by 7 getting a final answer of 42.</p> <p>The student indicates having used the Distributive Property.</p> <p><i>This question is a possible sample of a matching item technology-enhanced item.</i></p> <p>MAFS.7.NS.1.2c</p>
5.	<p>A. 1.625</p> <p>B. undefined</p> <p>C. $\frac{13}{8}$ is a rational number because it is a fraction of integers without a zero denominator or because its decimal representation terminates.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>MAFS.7.NS.1.2d</p>

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MAFS.7.NS.1.3	
1.	<p>34.65</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p>
2.	$ \begin{aligned} & -10 - 6 + 4 \div (-0.5)(-2) \\ & = -10 - 6 + (-8)(-2) \\ & = -10 - 6 + 16 \\ & = -16 + 16 \\ & = 0 \end{aligned} $
3.	<ul style="list-style-type: none"> • Completing the division problem $3\frac{4}{5} \div \frac{3}{4} = 5\frac{1}{5}$ to get five with a remainder of $\frac{1}{5}$ of a full bag. • Using repeated subtraction of $\frac{3}{4}$ from $3\frac{4}{5}$ (OR $\frac{15}{20}$ from $\frac{76}{20}$) to get five with a remainder of $\frac{1}{20}$ of a cup. • Changing both quantities to decimals and using repeated subtraction of 0.75 from 3.80 to get five with a remainder of 0.05 of a cup. <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
4.	<p>Disagree; Selling 8 ornaments covers most of her costs but still leaves her \$2 in debt.</p> $ \begin{aligned} & 3.50x - 30 \\ & 3.50(8) - 30 \\ & (24+4) - 30 \\ & 38 - 30 \\ & = -2 \end{aligned} $ <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>

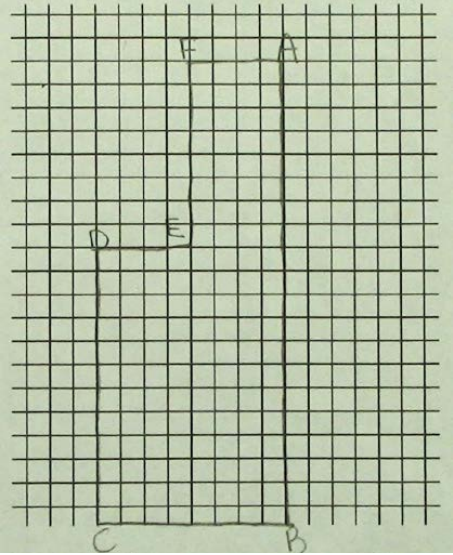
7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.NS.1.3-FSA Practice	
1.	-54
2.	<p>21.6</p> <p>The student uses the temperature differences to find the measured temperatures each week (25, 18.4, 22, 23.5, and 19.1) and averages them by finding their sum, 108, and dividing by five to find an average water temperature of 21.6.</p>
3.	<p>On line 4, Travis subtracted \$188 from \$180 and got a positive answer. The difference should be -\$8.00.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
4.	<p>Starting at Line 3: $180.00 - 188.00 + 20.00 - 5.95$ $-8.00 + 20.00 - 5.95$ $12.00 - 5.95$ $= 6.05$</p> <p>Travis' actual balance should be \$6.05.</p> <p>$6.05 + (-20.00)$ overdraft fee $-20.00 - 6.05$ -13.95</p> <p>$-13.95 + (-7.85)$ outstanding charge $-13.95 + -7.85$ -21.85</p> <p>To get his account back to 0, Travis needs to deposit \$21.80 or more to avoid another overdraft fee.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
5.	So \$284.99 should go to Mr. Aceves' class, \$174.41 should go to Mrs. Baca's class, and \$140.60 should go to Mr. Canyon's class.

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.G.1.1
1.	12.5 cm
2.	0.8 km
3.	780 cm
4.	187200 cm²
5.	A. 1 in = 13 ft B. 143 ft by 169 ft C. 69.04 bags so you would need to buy 70 bags

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MAFS.7.G.1.1-FSA Practice	
1.	183 m
2.	$\frac{1in^2}{64ft^2}$
3.	The area ratio is the square of the scale, 1 in : 8 feet.
4.	<div style="text-align: center;">  </div> <p style="background-color: yellow; padding: 5px;"><i>This question is a possible sample of a graphic-drawing response technology-enhanced item.</i></p>
5.	The new drawing is double the length of the original drawing because the scale is half the size.

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.G.1.2																	
1.	<p>The student is able to draw a triangle with angle measures 110°, 30°, and 40° and says it is possible to draw more than one triangle with these conditions.</p> <p><i>This question is a possible sample of a graphic-drawing response technology-enhanced item.</i></p>																
2.	<p>If the sides are increased proportionally, or by the same factor, the angle measures will not be changed.</p>																
3.	<p>The student is able to draw a triangle with the given angle and included side measures</p> <p><i>This question is a possible sample of a graphic-drawing response technology-enhanced item.</i></p>																
4.	<p>It is not possible to draw more than one triangle with these conditions. The student explains in terms of:</p> <ul style="list-style-type: none"> • The uniqueness of the third side. • The relationship between the length of a side and the opposite angle measure. 																
5.	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr style="background-color: #cccccc;"> <th style="width: 30%;">Side Lengths</th> <th style="width: 10%;">Yes</th> <th style="width: 10%;">No</th> <th style="width: 50%;">Explanation</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A. 5 cm, 8 cm, 12 cm</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td></td> <td>When comparing the sum of each pair of sides to the remaining third side, it is always greater.</td> </tr> <tr> <td style="text-align: center;">B. 12 in., 12 in., 12 in.</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td></td> <td>When comparing the sum of each pair of sides to the remaining third side, it is always greater.</td> </tr> <tr> <td style="text-align: center;">C. 3 ft, 6 ft, 10 ft</td> <td></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>The sum of 3 and 6 is not greater than the third side which is 10.</td> </tr> </tbody> </table> <p>The length of each side of a triangle must be less than the sum of the lengths of the other two sides.</p> <p><i>This question is a possible sample of a matching item response technology-enhanced item.</i></p>	Side Lengths	Yes	No	Explanation	A. 5 cm, 8 cm, 12 cm	<input checked="" type="checkbox"/>		When comparing the sum of each pair of sides to the remaining third side, it is always greater.	B. 12 in., 12 in., 12 in.	<input checked="" type="checkbox"/>		When comparing the sum of each pair of sides to the remaining third side, it is always greater.	C. 3 ft, 6 ft, 10 ft		<input checked="" type="checkbox"/>	The sum of 3 and 6 is not greater than the third side which is 10.
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C. 3 ft, 6 ft, 10 ft		<input checked="" type="checkbox"/>	The sum of 3 and 6 is not greater than the third side which is 10.														

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.G.1.2-FSA Practice													
1.	<p>The student is able to draw a triangle with sides of the given lengths.</p> <p><i>This question is a possible sample of a graphic-drawing response technology-enhanced item.</i></p>												
2.	<p>It is not possible to draw more than one triangle with these conditions. The student explains in terms of:</p> <ul style="list-style-type: none"> • The uniqueness of the third vertex. • The relationship between the length of a side and the opposite angle measure. 												
3.	<table border="1" style="width: 100%; border-collapse: collapse; margin: 10px auto;"> <thead> <tr style="background-color: #cccccc;"> <th style="width: 5%;"></th> <th style="width: 25%;"></th> <th style="width: 70%;">Is it possible? Explanation:</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A.</td> <td style="text-align: center;">10, 7, 2 cm</td> <td>No, the sum of 7 and 2 is not greater than the third side which is 10.</td> </tr> <tr> <td style="text-align: center;">B.</td> <td style="text-align: center;">3, 4, 5 cm</td> <td>Yes, when comparing the sum of each pair of sides to the remaining third side, it is always greater.</td> </tr> <tr> <td style="text-align: center;">C.</td> <td style="text-align: center;">8, 3, 11 cm</td> <td>No, the sum of 8 and 3 is equal to the third side, 11 cm, not greater.</td> </tr> </tbody> </table>			Is it possible? Explanation:	A.	10, 7, 2 cm	No, the sum of 7 and 2 is not greater than the third side which is 10.	B.	3, 4, 5 cm	Yes, when comparing the sum of each pair of sides to the remaining third side, it is always greater.	C.	8, 3, 11 cm	No, the sum of 8 and 3 is equal to the third side, 11 cm, not greater.
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C.	8, 3, 11 cm	No, the sum of 8 and 3 is equal to the third side, 11 cm, not greater.											
4.	<p>16 cm because the sum of 10 and 7 has to be greater than this new third side. The student is able to draw a triangle with sides of the given lengths.</p> <p><i>This question is a possible sample of a graphic-drawing response technology-enhanced item.</i></p>												

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.G.1.3
1.	B, C, D, E <i>This question is a possible sample of a multi-select technology-enhanced item.</i>
2.	Vertical Cut = Triangle Horizontal Cut = Circle <i>This question is a possible sample of an open response technology-enhanced item.</i>
3.	The cross section is a rectangle with a length equal to the length of the prism and a width equal to the width of the prism (or the same size as side <i>AEHD</i>). 6 units by 10 units <i>This question is a possible sample of a graphic-drawing response technology-enhanced item.</i>
4.	The cross section is a circle with a diameter equal to the diameter of the base of the cylinder, 4 units. <i>This question is a possible sample of an open response technology-enhanced item.</i>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.G.1.3-FSA Practice	
1.	<div style="display: flex; justify-content: space-around; margin-bottom: 5px;"> (1) Slice through AB (2) Slice through CD (3) Slice through vertex E </div>
2.	<p>The cross section is a rectangle with a length equal to the width (or length) of the prism and a width equal to the height of the prism, depending on the direction of the slice (or the same size as side $ABCD$ or $CDHG$).</p> <p>6 units by 4 units</p> <p><i>This question is a possible sample of a graphic-drawing response technology-enhanced item.</i></p>
3.	<p>The cross section is a rectangle with a length equal to the height of the cylinder and a width equal to the diameter of the base of the cylinder.</p> <p>7 units by 4 units</p> <p><i>This question is a possible sample of a graphic-drawing response technology-enhanced item.</i></p>
4.	<p>The cross section is a rectangle with a length equal to the height of the cylinder, 7 units, and a width less than the diameter of the base of the cylinder.</p>

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.G.2.4
1.	<p>Part A: C Part B: D</p>
2.	<p>A. Correctly identifies the formula for circumference of a circle, $C = 2\pi r$ and $C = \pi d$.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p> <p>B. Explains that C is the circumference, π is the ratio of the circumference to the diameter of a circle and has an approximation of 3.14, d is the diameter, and r is the radius.</p> <p>C. Correctly draws and labels the diameter and radius of the circle.</p>
3.	376.8 meters
4.	314 square yards
5.	<p>A. r, The y height of the rectangular shape is equal to the circle's radius.</p> <p>B. $\frac{1}{2}$ The base of the shape is equal to half of the circle's circumference.</p> <p>C. The student writes the equation $A = \frac{1}{2}Cr$, and explains that the equation indicates that the area of a circle is equal to half of the product of the circumference of the circle and its radius.</p>

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.G.2.4-FSA Practice															
1.	$225\pi \text{ cm}^2$															
2.	$25\pi/3 \text{ cm}^2$															
3.	<table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #FFD700;"> <th style="padding: 5px;">Diameter of Circle (inches)</th> <th style="padding: 5px;">Circumference of Circle (inches)</th> <th style="padding: 5px;">$\frac{\text{Circumference of Circle}}{\text{Diameter of Circle}}$</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">π</td> <td style="padding: 5px;">π</td> </tr> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">2π</td> <td style="padding: 5px;">π</td> </tr> <tr> <td style="padding: 5px;">3</td> <td style="padding: 5px;">3π</td> <td style="padding: 5px;">π</td> </tr> <tr> <td style="padding: 5px;">$\frac{1}{2}$</td> <td style="padding: 5px;">$\frac{1}{2}\pi$</td> <td style="padding: 5px;">π</td> </tr> </tbody> </table> <p style="background-color: #FFFF00; padding: 5px; margin-top: 10px;"><i>This question is a possible sample of a table response technology-enhanced item.</i></p>	Diameter of Circle (inches)	Circumference of Circle (inches)	$\frac{\text{Circumference of Circle}}{\text{Diameter of Circle}}$	1	π	π	2	2π	π	3	3π	π	$\frac{1}{2}$	$\frac{1}{2}\pi$	π
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4.	<p>The purple figure is composed of 5 squares each with an area of one unit² and four half-circles with a radius of 1 unit. Putting two half circles together creates a whole circle with radius 1 unit which has an area of $\pi \cdot 12 \text{ unit}^2$. Thus, the area of the purple figure is</p> <p>$5 + 2\pi \approx 11.28 \text{ unit}^2$.</p> <p>To find the perimeter of the purple figure, note that the boundary is composed of 4 half-circles with a radius of 1 unit and 4 segments of length 1 unit. Two half circles have a total length of $2\pi \cdot 1$ unit so the purple figure has a perimeter of</p> <p>$4 + 4\pi \approx 16.57 \text{ units}$.</p>															

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.G.2.5
1.	A. $x + 53 = 180$; <i>This question is a possible sample of an equation editor response technology-enhanced item.</i> B. $x = 127$ so that the $m = 127$ degrees.
2.	A. $x + 53 = 90$; <i>This question is a possible sample of an equation editor response technology-enhanced item.</i> B. $x = 37$ so that the measure of the complement of is 37 degrees.
3.	$2x + (x - 3) = 90$; $x = 31$
4.	$m\angle KPN = 2(31)$ or 62° .
5.	The $m\angle NPO = m\angle MPL$ since $\angle NPO$ and $\angle MPL$ are vertical. $m\angle NPO = 31 - 3$ or 28° , therefore $m\angle MPL = 28^\circ$. <i>This question is a possible sample of an open response technology-enhanced item.</i>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.G.2.5-FSA Practice	
1.	<p>A. $x + 29.02 = 90$;</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p> <p>B. $x = 60.98$ so that the measure of angle 1 = 60.98°.</p>
2.	<p>A. $x + 117 = 180$;</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p> <p>B. $x = 63$ so the $m\angle WXZ = 63^\circ$.</p>
3.	<p>$\frac{2}{3} = \frac{x}{180-x}$;</p> <p>$2x + 3x = 360$ or $x = 72$ so the $m\angle ABD = 72^\circ$.</p>
4.	<p>Part A: $\angle DCE = 63^\circ$ since $\angle BCF$ and $\angle DCE$ are vertical angles, or $x + 117 = 180$, $x = 63$.</p> <p>Part B: $x + 63 = 180$; $x = 117$ so that $m\angle FCE = 117^\circ$.</p>
5.	<p>$\angle DCB$ has the same measure as $\angle FCE$ since these angles are vertical.</p>

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.G.2.6
1.	4 square inches
2.	35 square inches <i>This question is a possible sample of an equation editor response technology-enhanced item.</i>
3.	Surface Area = 403.44 cm² Volume = 551.37 cm³
4.	The student successfully decomposes the solid figure into familiar shapes, selects appropriate formulas for calculating area, and accurately calculates the surface area as 760 ft². Note: The student may include the floor of the entire structure as part of the exterior surfaces to paint which would involve adding one base equal to 100 ft² resulting in a total surface area of 860 ft².

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.G.2.6-FSA Practice	
1.	74 square feet
2.	The volume of the rectangular prism as 21,000 ft ³ , The volume of the triangular prism as 8,400 ft ³ , and The volume of the house as 29,400 ft ³ .
3.	The student successfully decomposes the figure into familiar shapes, selects appropriate formulas for calculating area, and accurately calculates the surface area as 1608 cm ² .
4.	540 cm ³ <i>This question is a possible sample of an equation editor response technology-enhanced item.</i>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.1.1	
1.	B
2.	<p>The student suggests a sampling method that is likely to result in a representative sample. For example, the student suggests randomly selecting a large number ($n = 2000$) of 12-year-old boys from a number of schools throughout the state in a variety of settings (urban, rural, suburban).</p> <p>The student says the average height of these boys is a good estimate of the average height of 12 year old boys in the U.S.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
3.	<p>The student says that Jeremy's conclusion is not valid and explains: Jeremy's sampling method is biased since he is only surveying students attending a basketball game. Most people attending the game would not go unless they liked basketball.</p> <p>His sample is not representative of the population of seventh graders because people other than seventh graders were surveyed and a large group of seventh graders did not have the opportunity to be a part of the sample.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
4.	Jeff's survey
5.	<p>Jeff surveyed a larger amount of students than Benita. His survey included a sample of more than half of the homeroom students while Benita only surveyed 4 students.</p>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.1.1-FSA Practice	
1.	<p>C</p> <p>The student chooses C (“Ask every third student who walks into the school.”) as the best sampling method and explains:</p> <ul style="list-style-type: none"> • It includes students of all grade levels so it will provide the most representative sample of the whole student population, and • All students have an equal chance of being selected to participate in the survey so it is random. <p>The student may further explain reasons why the other choices would not be good survey methods:</p>
2.	<p>1. (A) Asking only students currently buying ice cream creates a bias in favor of the current flavors. There may be students who would buy ice cream but do not because they do not like the current flavors.</p> <p>2. (B) Asking only seventh graders will not represent students from all grade levels.</p> <p>3. (D) Asking only student council members will not be random because all students at the school do not have an equal chance of being selected. Also, this sample may be too small.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
3.	<p>It is unlikely that Mr. Briggs’s math class is a representative of all students at the school. For example, Mr. Briggs may be a particularly good (or entertaining) teacher, or he may pass out candy every day, or this class might be an advanced elective. Perhaps the students responded positively in hopes of pleasing their teacher.</p> <p>A better way to gather data would be to take a random sample of 25 students from all students at the school, so that it would be more representative of the population of interest.</p> <p>Among other options, this could be done by assigning a random number to every student from 1 to N, where N is the number of students at the school. Then a random digits table or a calculator could be used to select 25 random numbers between 1 to N for the sample.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
4.	<p>My sample is more representative because it is more random than my friend who is just surveying students who arrive early to school.</p>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.1.2	
1.	<p>The sample size is 50 students. So if 10 out of 50 students chose horror movies in the sample, then 240 total students from Moorsville MS would prefer horror movies.</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p>
2.	<p>The student explains that if another random sample of students were drawn, the results would probably be a little different due to sampling variability.</p> <p><i>This question is a possible sample of an open response technology-enhanced item.</i></p>
3.	<p>A. Since any estimate from 24.6% to 42.6% will be considered a winner, all of the estimates of 25%, 31.25%, and 37.5% would be the "winners." From the table or dot plot, that would be 15 + 22 + 20 respectively, which would make for a total of 57 winning estimates.</p> <p>B. From the table or dot plot, an estimate that is "more than half" would be any estimate of 56.25%, 62.5%, or 68.75%. That would be 4 + 2 + 1 respectively, which would make for a total of 7 estimates which have values that correspond to "more than half red."</p>
4.	<p>In this case, the estimate from any random sample of 16 marbles will always be of the form $\frac{x}{16}$ where x is a discrete value from 0,1,2,...16 . None of those possible proportions can equal exactly 33.6%; the closest possible sample percentage is 31.25% $\left(-\frac{5}{16}\right)$ which happens to be the most frequent estimate in the table. Alternatively, $0.336 \times 16 = 5.376$, and it is not possible to draw 5.376 red marbles as the number of reds drawn must be a whole number between 0 and 16 (inclusive).</p>
5.	<p>Under the assumption that the random samples are representative of the population from which they were selected, if half of the marbles in the glass jar were red, then the dot plot and table would most likely show a majority of sample values centered near 50%.</p> <p>We notice from the collected data that most of the sample estimates are in the 25% to 43.75% range, and the graph seems to be centered more in the low-30% values. Other arguments that discuss how the graph is centered at a value far from 50% and/or how a small number of the estimates are actually near 50% would also be appropriate.</p>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.1.2-FSA Practice	
1.	<p>The student calculates the sample proportion, 92 out of 150. Based on the estimate, 1595 students prefer longer school days.</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p>
2.	<p>The student offers a reasonable suggestion for increasing the confidence in the estimates such as increasing the sample size.</p>
3.	<p>Statement III</p>
4.	<p>Statement I bases the inference on the exact figures calculated from the table.</p> <p>Statement II-No one in the sample has a February birth month.</p> <p>Statement IV is not strongly supported by the data.</p> <p>Statement III is the only statement supported by the data because in the table there are 10 sampled students with birthdays in April compared to the 4 sampled students with birthdays in July.</p> <p>The statement also uses the word “probably” to emphasize that it is based on a sample as opposed to the entire school population.</p>

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.SP.2.3
1.	The median of the 12-17 age group is 20, and the median of the 18-24 age group is 40.
2.	The IQR of each age group is 10.
3.	The difference between the medians is 20, which is two times the IQR.

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.2.3-FSA Practice	
1.	Yes, the male hand-spans tend to be larger for males. All but two males are at least 20 cm but less than 50% of the female hands are that large.
2.	Carl
3.	Carl's median = 32 Angela's median = 28 $32-28 = 4$
4.	Carl's maximum = 62 Angela's maximum = 57 $62-57 = 5$
5.	Carl's range = $62-6 = 56$ Angela's range = $57-1 = 56$

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.SP.2.4
1.	B
2.	<p>The student compares the two distributions in context by comparing both the medians and a measure of spread such as the IQR. For example, the student writes:</p> <ul style="list-style-type: none">• The median height of Type A trees (18) is greater than the median height of Type B trees (16), so, in general, Type A trees are taller than Type B trees.• The interquartile range is the same for both distributions (8), so half of both populations of trees are between 12 and 20 feet in height.• The range of the Type A distribution (14) is greater than the range of the Type B distribution (10), so Type A trees vary in height more than Type B trees.
3.	<p>The student compares the two distributions in context by comparing both their means and their MADs. For example, the student writes:</p> <ul style="list-style-type: none">• The mean word length in the tenth grade geometry book (6.5) is greater than the mean word length in the seventh grade book (4.0) so words in the tenth grade book tend to be longer on average.• There is more variation in the length of the words in the tenth grade book (MAD = 2.5) than in the seventh grade book (MAD = 1.4).

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.2.4-FSA Practice	
1.	<p>The mean number of hours for students who attend the class in-person is 5.1 hours while the mean number of hours for students how access the class online is 4.6 hours.</p> <p>The median for students who attend class in-person is 5 and the median for students who access is 5.</p> <p>The range for students who attend class in-person is 3 while the range for students who access class online is 6. So, there is more variability in the data for students who access the class online.</p> <p>So, the students who attend class in –person spend more hours than students who access it online if you take the variability of the data into account.</p>
2.	<p>The mean number of callers is 7.5 and the mean number of emailers is 7.1.</p> <p>The median of callers is 7.5 and the median of emailers is 7.</p> <p>The range of callers is 9 and the range of emailers is 4.</p> <p>So, based on center the data is close but the variability for the callers is more spread out than the emailers.</p> <p>So the emailers are more consistently getting between 5 to 9 customers while the callers are more variable, ranging from 3 to 12 new customers.</p>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.3.5																																												
1.		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;"></th> <th style="width: 15%;">Probability of an Event?</th> <th style="width: 10%;">Yes</th> <th style="width: 10%;">No</th> <th style="width: 60%;">Explanation</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A.</td> <td style="text-align: center;">-1</td> <td></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Probability cannot be negative.</td> </tr> <tr> <td style="text-align: center;">B.</td> <td style="text-align: center;">4.2</td> <td></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Probability cannot be greater than 1.</td> </tr> <tr> <td style="text-align: center;">C.</td> <td style="text-align: center;">0.6</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td></td> <td>Represents probability because it is between zero and one, inclusive.</td> </tr> <tr> <td style="text-align: center;">D.</td> <td style="text-align: center;">0.888</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td></td> <td>Represents probability because it is between zero and one, inclusive.</td> </tr> <tr> <td style="text-align: center;">E.</td> <td style="text-align: center;">0</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td></td> <td>Represents probability because it is between zero and one, inclusive.</td> </tr> <tr> <td style="text-align: center;">F.</td> <td style="text-align: center;">0.39</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td></td> <td>Represents probability because it is between zero and one, inclusive.</td> </tr> <tr> <td style="text-align: center;">G.</td> <td style="text-align: center;">-0.5</td> <td></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Probability cannot be negative.</td> </tr> </tbody> </table>		Probability of an Event?	Yes	No	Explanation	A.	-1		<input checked="" type="checkbox"/>	Probability cannot be negative.	B.	4.2		<input checked="" type="checkbox"/>	Probability cannot be greater than 1.	C.	0.6	<input checked="" type="checkbox"/>		Represents probability because it is between zero and one, inclusive.	D.	0.888	<input checked="" type="checkbox"/>		Represents probability because it is between zero and one, inclusive.	E.	0	<input checked="" type="checkbox"/>		Represents probability because it is between zero and one, inclusive.	F.	0.39	<input checked="" type="checkbox"/>		Represents probability because it is between zero and one, inclusive.	G.	-0.5		<input checked="" type="checkbox"/>	Probability cannot be negative.		
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2.		<p>A. “certain” or “for sure will happen”</p> <p>B. “very unlikely” or “most likely will not happen”</p> <p>C. “impossible” or “it cannot happen”</p> <p>D. “as likely to happen as not happen”</p> <p>E. “very likely” or “almost for sure will happen”</p>																																										
3.		D																																										
4.		A, Spinner A has a 3 out of 6 chance of landing on blue while Spinner B has a 1 out of 3 chance of landing on blue.																																										
5.		D																																										

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.3.5-FSA Practice	
1.	Neither likely nor unlikely since 40% is close to 50%.
2.	Likely, since $\frac{9}{10}$ is close to one.
3.	Unlikely, since .08 is close to zero.
4.	A
5.	A

7th Grade MAFS Spiral Review Packet-Answer Key

	MAFS.7.SP.3.6
1.	B
2.	There is a $\frac{3}{12}$ or $\frac{1}{4}$ or 25% chance of the hen laying exactly five eggs next week.
3.	There is a $\frac{6}{12}$ or $\frac{1}{2}$ or 50% chance of the hen laying four or fewer eggs next week.
4.	D
5.	A

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.3.6-FSA Practice	
1.	The student says that he or she would expect 30 green marbles to be drawn out of 50 tries based on the calculation $0.6(50) = 30$.
2.	The student says that it is possible for Dylan to draw exactly five green marbles in 50 tries: <ul style="list-style-type: none">• Because 30 is only an estimate.• Even though it is not very likely.
3.	The student estimates that the sum of 10 will occur 50 out of 600 tries based on the calculation $\frac{1}{12} \times 600 = 50$.
4.	The student explains it is not likely Olivia will roll a sum of 10 exactly 50 times because: <ul style="list-style-type: none">• It is just an estimate based on the probability.• The value is only theoretical.• It is probable but not certain.

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.3.7	
1.	<p>B MAFS.7.SP.3.7a</p>
2.	<p>80 times for yellow. The experiment will be repeated 240 times. 120 times have been predicted as blue.</p> <p>240-120 =120 40 times have been predicted as green. 120-40 = 80.</p> <p>That leaves 80 times left to be predicted as yellow.</p> <p>MAFS.7.SP.3.7b</p>
3.	<p>6 Blue tiles: Susan predicted that 120 times she would pull a blue tile. She would repeat the experiment 240 times. 120 is half of 240 and there are 12 tiles.</p> <p>Half of 12 is 6.</p> <p>2 Green tiles: 4 is $\frac{1}{6}$ of 24, so 40 is $\frac{1}{6}$ of 240. $\frac{1}{6}$ of the total of 12 tiles is 2.</p> <p>4 Yellow tiles: 8 is $\frac{1}{3}$ of 24, so 80 is $\frac{1}{3}$ of 240. $\frac{1}{3}$ of the total of 12 tiles is 4.</p> <p>MAFS.7.SP.3.7b</p>
4.	<p>$P(\text{Sally}) = \frac{1}{24}$ or equivalent (because there is one student named Sally out of 24 possible students who might be assigned the defective monitor).</p> <p>MAFS.7.SP.3.7a</p>
5.	<p>$P(\text{boy at hub A}) = \frac{3}{24}$ or equivalent (because there are three boys at hub A out of 24 possible students who might be assigned the defective monitor).</p> <p>MAFS.7.SP.3.7a</p>

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.3.7-FSA Practice																			
1.	<p>The probability of selecting a boy is $\frac{1}{2}$ or 50% (or equivalent) because there is one favorable outcome out of two possible outcomes.</p> <p>MAFS.7.SP.3.7a</p>																		
2.	<p>The probability is $\frac{16}{20}$ (based on the observed frequency) or 80% (or equivalent) because tails was tossed 16 out of 20 times.</p> <p>MAFS.7.SP.3.7b</p>																		
3.	<p>The probabilities may differ because the coin is not fair or is being tossed in an unfair manner.</p> <p>The student may suggest that the coin is fair and that this pattern of events, although possible, is highly unlikely.</p> <p>MAFS.7.SP.3.7b</p>																		
4.	<table border="1"><thead><tr><th>Color</th><th>Frequency</th><th>Probability</th></tr></thead><tbody><tr><td>blue</td><td>29</td><td>0.19</td></tr><tr><td>yellow</td><td>57</td><td>0.38</td></tr><tr><td>green</td><td>34</td><td>0.227</td></tr><tr><td>red</td><td>30</td><td>0.2</td></tr><tr><td>purple</td><td>0</td><td>0</td></tr></tbody></table> <p>MAFS.7.SP.3.7b</p>	Color	Frequency	Probability	blue	29	0.19	yellow	57	0.38	green	34	0.227	red	30	0.2	purple	0	0
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5.	<p>The student says the outcomes are not equally likely because the probabilities are very different (e.g., yellow was picked much more than expected and purple was not picked at all).</p> <p>The student explains that there may not have been one of each marble in the bag since purple was never chosen and yellow was chosen almost twice as often as red.</p> <p>MAFS.7.SP.3.7b</p>																		

7th Grade MAFS Spiral Review Packet-Answer Key

	<p>MAFS.7.SP.3.8</p>																														
1.	<p>Part A: $P(\text{V6 wagon}) = \frac{4}{24}$ or equivalent.</p> <p>MAFS.7.SP.3.8a</p> <p>Part B: There are four branches labeled “wagon,” and from each wagon is an option for either a four-cylinder or six-cylinder engine.</p> <p style="padding-left: 40px;">Although there are eight wagon choices, only four of them are V6, which makes the number of favorable outcomes (the numerator) four. Then find the total number of possible car combinations by counting the end of each branch, which makes the total possible outcomes (the denominator) 24.</p> <p>MAFS.7.SP.3.8b</p>																														
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111	222	333																													
112	221	331																													
113	223	332																													
121	212	311																													
122	213	312																													
123	211	313																													
131	231	321																													
132	232	322																													
133	233	323																													
3.	<p>D</p> <p>MAFS.7.SP.3.8c</p>																														
4.	<p>0.36</p> <p>MAFS.7.SP.3.8c</p>																														

7th Grade MAFS Spiral Review Packet-Answer Key

MAFS.7.SP.3.8-FSA Practice	
1.	<p>A.</p> <p>MAFS.7.SP.3.8b</p> <p>B. $\frac{1}{4}$</p> <p>MAFS.7.SP.3.8a</p>
2.	<p>A. 16 outcomes</p> <p>B. 13 outcomes</p> <p>MAFS.7.SP.3.8b</p>
3.	<p>B</p> <p>MAFS.7.SP.3.8c</p>
4.	<p>$\frac{8}{15}$ or equivalent</p> <p><i>This question is a possible sample of an equation editor response technology-enhanced item.</i></p> <p>MAFS.7.SP.3.8c</p>
5.	<p>The student describes a simulation that will generate frequencies for the events of “no cats with an orange coat” and “at least one cat with an orange coat” (e.g., rolling four number cubes with the number one representing a cat with an orange coat).</p> <p>MAFS.7.SP.3.8c</p>