Mathematics 9 – Midterm Review Package Name: _____

NON – CALCULATOR SECTION (Formulas at end of exam…)

1. Evaluate: -3.21 + -5.75 = ____

A. -2.54 B. -8.96 C. 8.96 D. 2.54

2. Evaluate: $-\frac{3}{7}+-\frac{2}{3}=$ _____

A. -23/21 B. 5/10 C. -5/10 D. 23/21

3. Estimate: 1.8 + 2.08 = ____

A. -4 B. -1 C. 0 D. 4

4. Evaluate: -2/3 x -3/5 = _____

A. $-\frac{5}{2}$ B. $-\frac{3}{5}$ C. $-\frac{2}{5}$ D. $\frac{2}{5}$

5. Convert to an improper fraction: $-3\frac{3}{4}$ = _____

A. $-\frac{15}{4}$ B. $\frac{31}{15}$ C. $\frac{4}{15}$ D. $\frac{15}{4}$

6. Evaluate: $\frac{12}{5} \div \frac{1}{2}$ = _____

A. $\frac{24}{5}$ B. $\frac{40}{3}$ C. $\frac{3}{40}$ D. $\frac{5}{24}$

7. Estimate the value of $\sqrt{18}$ to one decimal place.

A. 4.0 B. 4.2 C. 4.4 D. 4.6

8. What is the value of $\sqrt{0.04}$?

A. 0.002 B. 0.02 C. 0.2 D. 2

9. Which symbol will make the inequality 0.85 ___ $\sqrt{0.85}$ true?

A. > B. < C. = D. ≤

10. List the following fractions in order from ***least to greatest***: $\frac{4}{7},\frac{2}{6},\frac{3}{8}$

A. $\frac{3}{8},\frac{4}{7},\frac{2}{6}$ B. $\frac{2}{6},\frac{4}{7},\frac{3}{8}$ C. $\frac{2}{6},\frac{3}{8},\frac{4}{7}$ D. $\frac{4}{7},\frac{2}{6},\frac{3}{8}$

11. Evaluate: -5^2

A. 25 B. -25 C. -10 D. 10

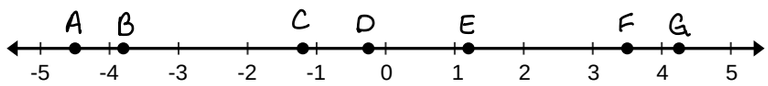
12. Simplify: $(3^3 x 3^2 x 3)^2$

A. 3^{10} B. 27^{10} C. 3^{12} D. 27^{12}

END OF NON-CALCULATOR SECTION

CALCULATOR SECTION (Formulas at end of exam…)

Mathematics 9 – Midterm Review Package



1. The number -4.3 would be between which of pair of points on the number line above?

   A. **A** and **B** B. **B** and **C** C. **C** and **D** D. **D** and **E**

2. Evaluate: $5 + 6 \div 2 - 12 \times 2^2 =$

   A. 40 B. 30 C. -40 D. -30

3. Evaluate: $-\frac{3}{4} + \frac{5}{3} \div \frac{1}{2}$

   A. $\frac{-11}{6}$ B. $\frac{31}{12}$ C. $\frac{4}{7}$ D. $\frac{-8}{7}$

4. Evaluate: $\frac{3^2 + 2^3}{5^2}$

   A. 17 B. $\frac{17}{25}$ C. 25 D. $\frac{1}{2}$

5. Evaluate to 2 decimal places: $\frac{45.2}{9.5 \times (14.6 - 8.8)}$

   A. 0.25 B. 60.7 C. 0.82 D. 27.6

6. Which of the following has the ***greatest*** value?

   A. 3 x 4 – 6 ÷ 2 B. 3 x 2 – (6 – 3) C. 2 + 1 x 7 – 3 D. 3 + (8 + 4 x 2)

7. Which number is between 3.7676… and 3.7575…?

   A. 3.768 B. 3.76 C. 3.80 D. 3.67

8. Consider the following list of numbers: $\frac{3}{4}, \frac{7}{8}, \frac{4}{5}, \frac{5}{7}, \frac{5}{6}$

   What is the ***largest*** number on the list?

   A. $\frac{3}{4}$ B. $\frac{7}{8}$ C. $\frac{5}{7}$ D. $\frac{5}{6}$

9. One day, the temperature increased from -10.3 °C to 3.2° C in 3 hours. What was the temperature change per hour?

   A. 4.5 °C/hr B. 2.4°C/hr C. -4.5 °C/hr D. -2.4°C/hr

10. Determine the side length of a square with an area of 0.09 cm^2.

    A. 3 cm B. 0.3 cm C. 0.03 cm D. 0.0081 cm

11. Evaluate: 3^5

    A. 15 B. 125 C. 243 D. 405

12. Evaluate: $(-3)^2$

    A. -9 B. -6 C. 9 D. 6

13. Evaluate: $\left(\frac{3}{4}\right)^3$

A. $\frac{3}{64}$ B. $\frac{9}{12}$ C. $\frac{27}{4}$ D. $\frac{27}{64}$

14. Evaluate: $(-3 + 2 \times 7)^0$

A. -7 B. 11 C. 1 D. 0

15. Simplify: $3^4 \times 3^2$

A. 9^6 B. 9^8 C. 3^6 D. 3^8

16. Simplify: $\frac{3^5}{3^3}$

A. 1^8 B. 1^2 C. 3^8 D. 3^2

17. Simplify: $5^3 x 5^2 x 5$

A. 5^5 B. 5^6 C. 25^6 D. 125^6

18. Simplify: $(5^3 3^7)^2$

A. $5^6 3^{14}$ B. $25^3 9^7$ C. $5^5 3^9$ D. $5^{3/2} 3^{7/2}$

19. Simplify: $(4x^3y^2)(3xy)$

A. $12x^{12}y^6$ B. $12x^7y^5$ C. $8x^7y^5$ D. $12x^4y^3$

20. Simplify: $\frac{60(2^5)}{4(2^2)}$

A. $15(2^8)$ B. $4(1^3)$ C. $4(2^8)$ D. $15(2^3)$

21. If a colony of 1000 bacteria doubles in size every 3 hours, what is the size of the colony after 12 hours?

A. 16000 B. 64000 C. 32000 D. 8000

22. When an object is falling, the relationship between the distance (d) travelled and time (t) is given by: $d = \frac{1}{2}9.8t^2$

Where t is in seconds and d is in metres. How far does an object fall in 4 seconds?

A. 78.4m B. 117.6m C. 156.8 m D. 384.16 m

23. In the term $5s^2t^2$, the number "t" is best described as being the:

A. coefficient B. constant C. power D. variable

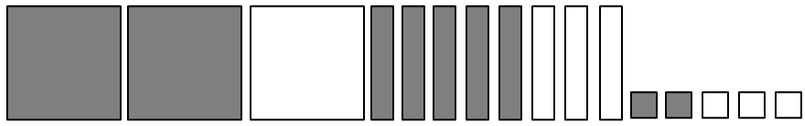
24. What is the degree of the polynomial $4x^2 + 3x - 5$?

A. 1 B. 2 C. 3 D. 4

25. Which of the following is a simplified trinomial?

A. xy B. $x - y + 2x$ C. $x^2 + x$ D. $x + y + 2$

26. When the following model is simplified, the expression is (shaded are positive):



A. $3x^2 + 5x + 2$ B. $2x^2 + 2x - 2$ C. $x^2 + 2x - 1$ D. $-x^2 - 5x - 2$

27. What is the opposite expression for: $-3a^2 - 5a + 6$

A. $3a^2 - 5a + 6$ B. $-3a^2 - 5a - 6$ C. $3a^2 + 5a - 6$ D. $3a^2 + 5a + 6$

28. What is the coefficient of the x^6 term? $-5x^3y^4 + 7x^6 - 9x^2y^3 - 8x - 4$?

A. 1 B. 5 C. 6 D. 7

29. How many of the given statements are true for the polynomial: $x^3y^3 + 5x^2 + 7$?
- It has 3 terms
- The largest coefficient is 5
- Its degree is 6
- It does not have any like terms

A. 1 B. 2 C. 3 D. all 4 are correct

30. Simplify: $(5x^2 - 6x - 1) - (-4x^2 + 6x + 1)$

A. $9x^2 - 12x + 8$ B. $9x^2 - 12x - 2$ C. $x^2 - 6x - 2$ D. $9x^4 - 12x^2 - 2$

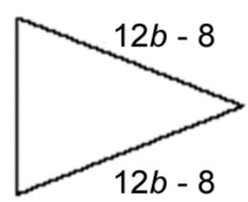
31. Simplify: $-2(5x^2 - 2x + 7)$

A. $-10x^2 + 14$ B. $10x^2 - 4x - 14$ C. $-10^2 + 4x - 14$ D. $7x^2 + 14$

32. Simplify: $5(3x - 2) - 2(6 - 7x)$

A. $x + 2$ B. $-29x + 2$ C. $29x - 22$ D. $x - 22$

33. Find an expression for the length of the missing side of the triangle, given that the perimeter is $33b - 8$?

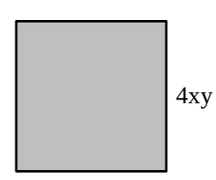


A. $24b - 16$ B. $9b - 8$ C. $9b + 8$ D. $11b - 8$

34. Simplify: $\dfrac{-12x^2 + 8xy}{4x}$

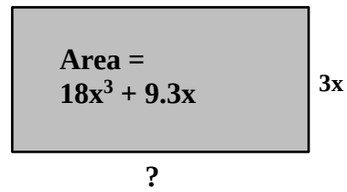
A. $-3x + 8y$ B. $-1xy$ C. $-3x + 2y$ D. $3x + 2y$

35. Determine an expression for the area of a square with side length of 4xy.



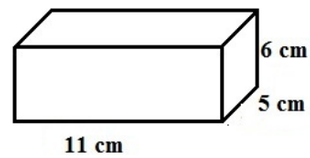
A. $2xy$ B. $4x^2y$ C. $8x^2y^2$ D. $16x^2y^2$

36. Find an expression for the unknown dimension of the rectangle?



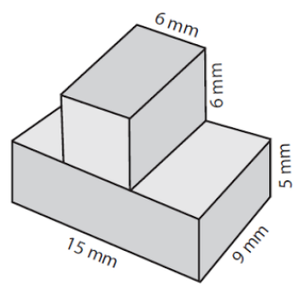
A. $15x^2 + 3.1x$ B. $6x^2 + 3.1$ C. $6x^2 + 3.1x$ D. $15x + 3.1$

37. Pictured right is a very tiny glass aquarium tank, what is the total exterior surface area of the tank, including the top and bottom.



A. 44 cm^2 B. 330 cm^2 C. 151 cm^2 D. 302 cm^2

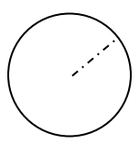
38. Determine the SA of the composite shape (include bottom):



A. 41 mm^2
B. 690 mm^2
C. 798 mm^2
D. 24,300 mm^2

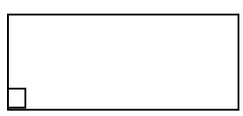
Formulas

Area of a circle



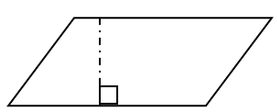
$A = \pi r^2$

Area of a rectangle



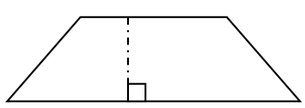
$A = bh$

Area of a parallelogram



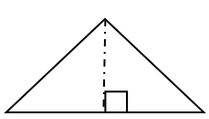
$A = bh$

Area of a trapezoid



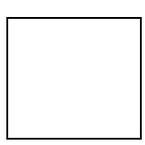
$A = \frac{1}{2}(b_1 + b_2)h$

Area of a triangle



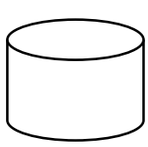
$A = \frac{1}{2}bh$

Area of a Square



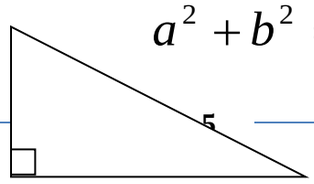
$A = s^2$

Surface area of a cylinder



$SA = 2\pi r^2 + 2\pi rh$

Pythagorean Theorem



$a^2 + b^2 = c^2$