# Geometry Practice EOC

## Released from Missouri

Name:________________________________

Period:_____________ Date:______________

Teacher: _______________________________

# Algebra 1 End-of-Course and Geometry End-of-Course Assessments Reference Sheet

### Area

| | |
|---|---|
| Parallelogram | $A = bh$ |
| Triangle | $A = \frac{1}{2}bh$ |
| Trapezoid | $A = \frac{1}{2}h(b_1 + b_2)$ |
| Circle | $A = \pi r^2$ |
| Regular Polygon | $A = \frac{1}{2}aP$ |

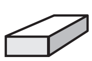
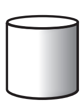
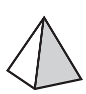
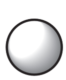
### KEY

| | |
|---|---|
| $b$ = base | $A$ = area |
| $h$ = height | $B$ = area of base |
| $w$ = width | $C$ = circumference |
| $d$ = diameter | $V$ = volume |
| $r$ = radius | $P$ = perimeter of base |
| $\ell$ = slant height | |
| $a$ = apothem | $S.A.$ = surface area |

Use 3.14 or $\frac{22}{7}$ for $\pi$.

### Circumference

$C = \pi d$ or $C = 2\pi r$

| | | Volume/Capacity | Total Surface Area |
|---|---|---|---|
|  | Rectangular Prism | $V = bwh$ or<br>$V = Bh$ | $S.A. = 2bh + 2bw + 2hw$ or<br>$S.A. = Ph + 2B$ |
|  | Right Circular Cylinder | $V = \pi r^2 h$ or<br>$V = Bh$ | $S.A. = 2\pi rh + 2\pi r^2$ or<br>$S.A. = 2\pi rh + 2B$ |
|  | Right Square Pyramid | $V = \frac{1}{3}Bh$ | $S.A. = \frac{1}{2}P\ell + B$ |
|  | Right Circular Cone | $V = \frac{1}{3}\pi r^2 h$ or<br>$V = \frac{1}{3}Bh$ | $S.A. = \frac{1}{2}(2\pi r)\ell + B$ |
|  | Sphere | $V = \frac{4}{3}\pi r^3$ | $S.A. = 4\pi r^2$ |

Sum of the measures of the interior angles of a polygon $= 180(n-2)$

Measure of an interior angle of a regular polygon $= \dfrac{180(n-2)}{n}$

where:

$n$ represents the number of sides

# Algebra 1 End-of-Course and Geometry End-of-Course Assessments Reference Sheet

### Slope formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

where $m$ = slope and $(x_1, y_1)$ and $(x_2, y_2)$ are points on the line

### Slope-intercept form of a linear equation

$$y = mx + b$$

where $m$ = slope and $b$ = $y$-intercept

### Point-slope form of a linear equation

$$y - y_1 = m(x - x_1)$$

where $m$ = slope and $(x_1, y_1)$ is a point on the line

### Distance between two points

$P_1(x_1, y_1)$ and $P_2(x_2, y_2)$

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

### Midpoint between two points

$P_1(x_1, y_1)$ and $P_2(x_2, y_2)$

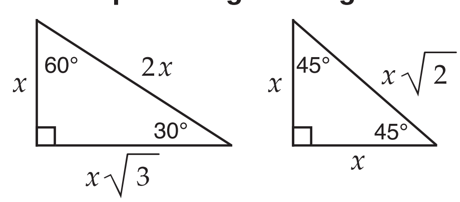
$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

### Quadratic formula

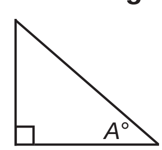
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

where $a$, $b$, and $c$ are coefficients in an equation of the form $ax^2 + bx + c = 0$

### Special Right Triangles




### Trigonometric Ratios




$$\sin A° = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos A° = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan A° = \frac{\text{opposite}}{\text{adjacent}}$$

## Conversions

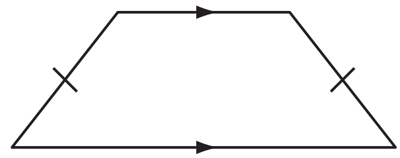
1 yard = 3 feet
1 mile = 1,760 yards = 5,280 feet
1 acre = 43,560 square feet
1 hour = 60 minutes
1 minute = 60 seconds

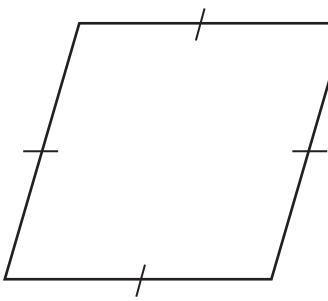
1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 pound = 16 ounces
1 ton = 2,000 pounds

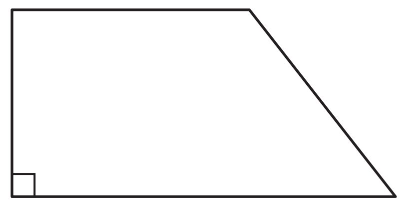
1 meter = 100 centimeters = 1000 millimeters
1 kilometer = 1000 meters
1 liter = 1000 milliliters = 1000 cubic centimeters
1 gram = 1000 milligrams
1 kilogram = 1000 grams

1. **Which shape does *not* have any lines of symmetry?**

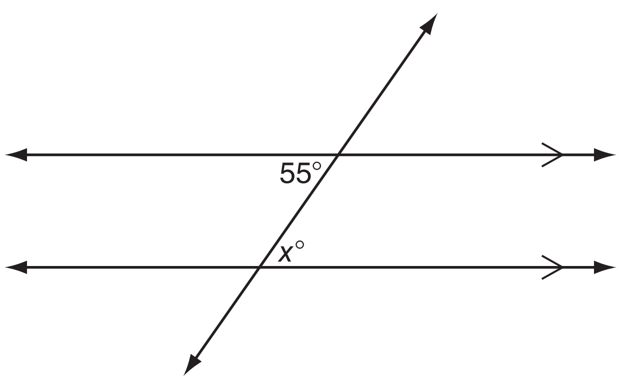
**A.** 

**C.** 

**B.** 

**D.** 

2. **The lines shown below are parallel.**




**What is the value of *x*?**

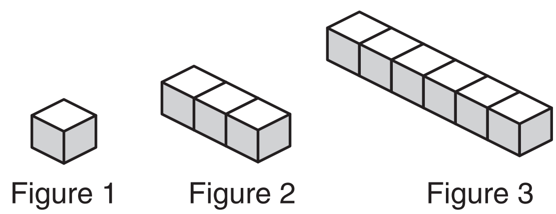
**A.** 35

**B.** 55

**C.** 110

**D.** 125

**3.** **Which of these expressions represents the pattern for the number of cubes in figure *n*?**




| **Figure number** | 1 | 2 | 3 | 4 | 5 | … | $n$ |
|---|---|---|---|---|---|---|---|
| **Number of cubes** | 1 | 3 | 6 | 10 | | … | |

**A.** $\frac{n(n+1)}{2}$

**B.** $\frac{n(n+2)}{2}$

**C.** $n(n+1)$

**D.** $n(n+2)$

**4.** **Given: $\overline{AB}$ with coordinates of A($-3$, $-1$) and B(2, 1)**
**$\overline{A'B'}$ with coordinates of A′($-1$, 2) and B′(4, 4)**

**Which translation was used?**

**A.** $(x, y) \rightarrow (x + 2, y + 3)$

**B.** $(x, y) \rightarrow (x + 2, y - 3)$

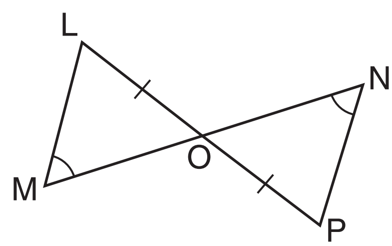
**C.** $(x, y) \rightarrow (x - 2, y + 3)$

**D.** $(x, y) \rightarrow (x - 2, y - 3)$

*Go On* ►

**5. Given: $\angle M \cong \angle N$, $\overline{LO} \cong \overline{PO}$**

**Prove: $\triangle MOL \cong \triangle NOP$**




| Statements | Reasons |
|---|---|
| 1) $\angle M \cong \angle N$ | 1) Given |
| 2) $\overline{LO} \cong \overline{PO}$ | 2) Given |
| 3) $\angle MOL \cong \angle NOP$ | 3) ____ |
| 4) $\triangle MOL \cong \triangle NOP$ | 4) AAS |

**Which of these reasons would be appropriate for statement 3?**

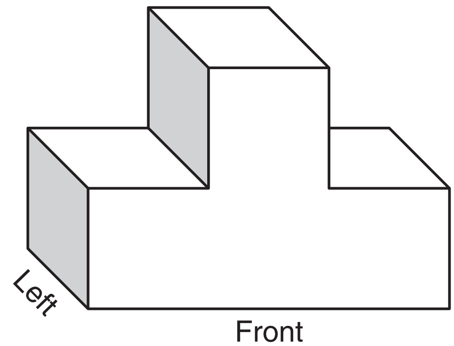
**A.** reflexive property

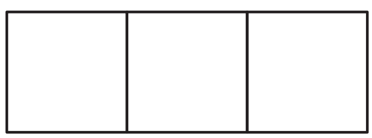
**B.** definition of midpoint

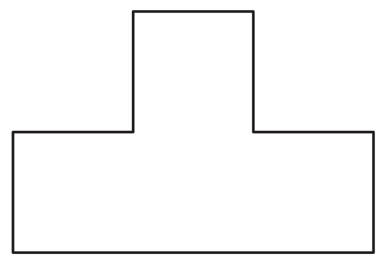
**C.** Vertical angles are congruent.

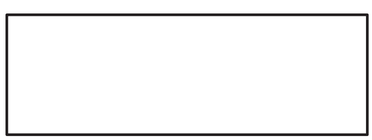
**D.** Corresponding parts of congruent triangles are congruent.

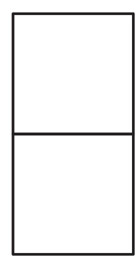
6. **Which diagram shows the top view of the solid below?**




**A.** 

**C.** 

**B.** 

**D.** 

7. **Which statement is true about an equilateral triangle?**

**A.** It has no rotational symmetry.

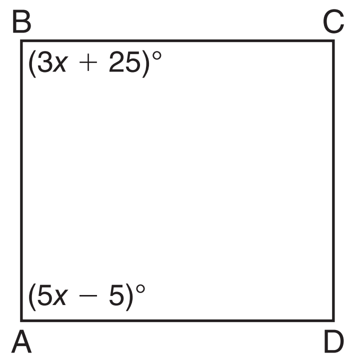
**B.** It has only rotational symmetry.

**C.** It has exactly 1 line of symmetry.

**D.** It has exactly 3 lines of symmetry.

*Go On* ▶

**8. Parallelogram ABCD is shown below.**




(Not drawn to scale)

**What is the measure of ∠ABC?**

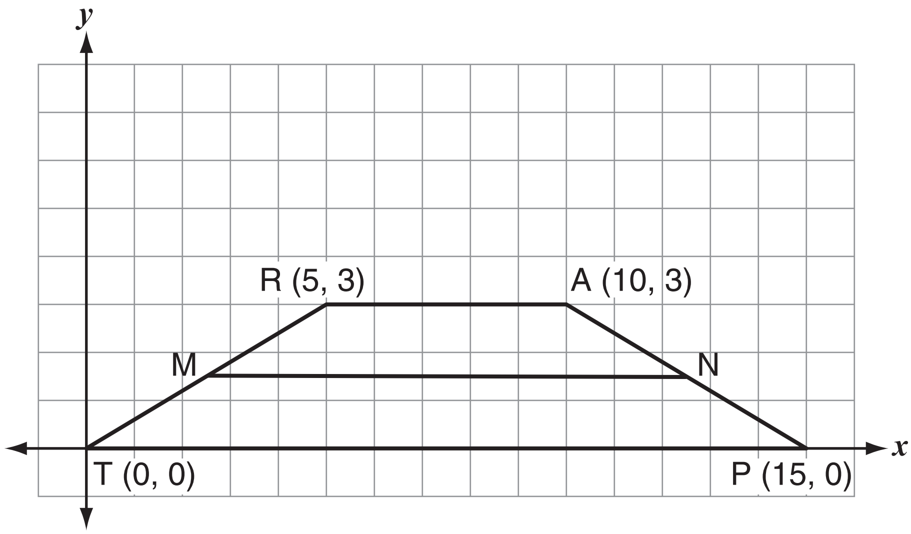
**A.** 85°

**B.** 90°

**C.** 95°

**D.** 100°

**9.** **Trapezoid TRAP is shown below.**




**What is the length of midsegment MN?**

**A.** 10

**B.** $\frac{25}{2}$

**C.** $\sqrt{234}$

**D.** 100

*Go On* ▶

**10.** **Look at the letters below.**

**COIVHTME**

**How many letters have a horizontal line of symmetry?**

**A.** 3

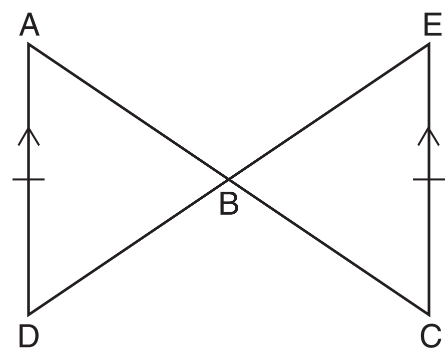
**B.** 5

**C.** 6

**D.** 8

**11.** **Given:** $\overline{AD} \parallel \overline{EC}$, $\overline{AD} \cong \overline{EC}$

**Prove:** $\overline{AB} \cong \overline{CB}$




**Shown below are the statements and reasons for the proof. They are not in the correct order.**

| Statement | Reason |
|---|---|
| I. $\triangle ABD \cong \triangle CBE$ | I. AAS |
| II. $\angle ABD \cong \angle EBC$ | II. Vertical angles are congruent. |
| III. $\overline{AD} \parallel \overline{EC}$, $\overline{AD} \cong \overline{EC}$ | III. Given |
| IV. $\overline{AB} \cong \overline{CB}$ | IV. Corresponding parts of congruent triangles are congruent. |
| V. $\angle DAB \cong \angle ECB$ | V. If two parallel lines are cut by a transversal, the alternate interior angles are congruent. |

**Which of these is the most logical order for the statements and reasons?**

**A.** I, II, III, IV, V

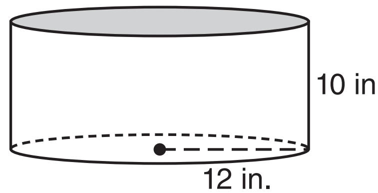
**B.** III, II, V, I, IV

**C.** III, II, V, IV, I

**D.** II, V, III, IV, I

*Go On* ▶

**12. What is the volume of the right cylinder below, in terms of $\pi$?**



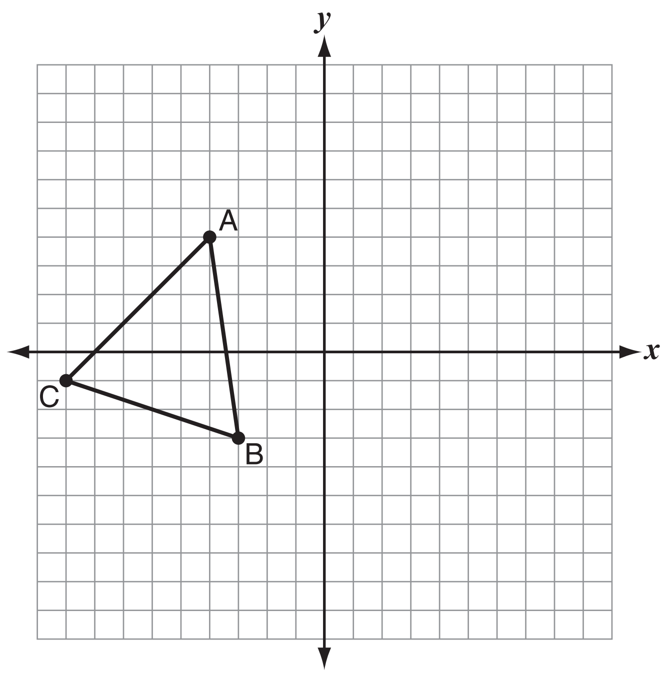

**A.** $120\pi$ cubic inches

**B.** $240\pi$ cubic inches

**C.** $1{,}200\pi$ cubic inches

**D.** $1{,}440\pi$ cubic inches

**13.** **△ABC with vertices at A(−4, 4), B(−3, −3), and C(−9, −1) is rotated 180° counterclockwise about the origin.**




**What are the vertices of the image, △A′B′C′?**

**A.** A′(−4, 4), B′(−3, −3), C′(−9, −1)

**B.** A′(4, −4), B′(−3, −3), C′(−1, −9)

**C.** A′(4, −4), B′(3, 3), C′(9, 1)

**D.** A′(4, 4), B′(3, −3), C′(9, −1)

*Go On* ▶

**14.** **Which table of values represents the line with the equation $y = \frac{2}{3}x + 3$?**

**A.**

| $x$ | $y$ |
|---|---|
| 0 | 3 |
| 2 | 6 |
| 4 | 9 |

**B.**

| $x$ | $y$ |
|---|---|
| 1 | $-3$ |
| 2 | $-\frac{3}{2}$ |
| 3 | 0 |

**C.**

| $x$ | $y$ |
|---|---|
| $-3$ | 1 |
| 0 | 3 |
| 3 | 5 |

**D.**

| $x$ | $y$ |
|---|---|
| 0 | 3 |
| 1 | $\frac{5}{3}$ |
| 2 | $\frac{7}{3}$ |

**15.** **Mr. Smith and Ms. Jones start at the same place. Mr. Smith drives north for 4 miles. Ms. Jones drives east for 5 miles. What is the direct distance between Mr. Smith and Ms. Jones?**

REF

**A.** $\sqrt{18}$ miles

**B.** $\sqrt{41}$ miles

**C.** 9 miles

**D.** 41 miles

**16.** **Given: $\overleftrightarrow{XY}$ and $\overleftrightarrow{ZW}$ intersect at point A.**

**Which conjecture is *always* true about the given statement?**

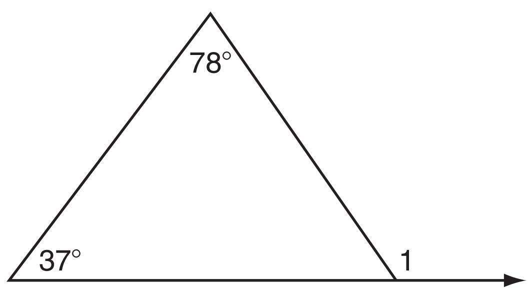
**A.** XA = AY

**B.** $\angle$XAZ is acute.

**C.** $\overleftrightarrow{XY}$ is perpendicular to $\overleftrightarrow{ZW}$.

**D.** X, Y, Z, and W are noncollinear.

**17.** **What is the measure of $\angle$1 in the figure below?**




(Not drawn to scale)

**A.** 41°

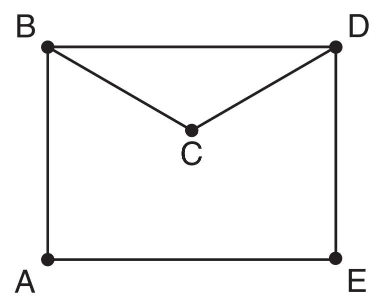
**B.** 65°

**C.** 102°

**D.** 115°

*Go On* ▶

**18.** **As a classroom warm-up problem, Ms. Hughes drew this network and asked her students to write down the path that showed traceability.**




**Which response shows the traceable path?**

**A.** $\overline{CB}$, $\overline{BA}$, $\overline{AE}$, $\overline{ED}$, $\overline{CD}$

**B.** $\overline{BC}$, $\overline{CD}$, $\overline{DE}$, $\overline{EA}$, $\overline{AB}$, $\overline{BD}$

**C.** $\overline{AB}$, $\overline{BC}$, $\overline{CD}$, $\overline{DE}$, $\overline{AE}$, $\overline{AB}$, $\overline{DB}$

**D.** $\overline{AE}$, $\overline{ED}$, $\overline{DB}$, $\overline{BC}$, $\overline{CD}$, $\overline{BD}$, $\overline{BA}$

**19.** **Look at the conditions below.**

**1. If a quadrilateral has four right angles, then it is a rectangle.**

**2. If a quadrilateral is a rectangle, then it could be a square.**

**3. Quadrilateral ABCD has four right angles.**

**Using these conditions, which of these is a valid conclusion?**

**A.** Quadrilateral ABCD must be a square.

**B.** Quadrilateral ABCD is not a rectangle.

**C.** Quadrilateral ABCD could be a square.

**D.** Quadrilateral ABCD could be a rectangle.

**20.** **What is the *y*-intercept of the equation $3x - 2y = 24$?**

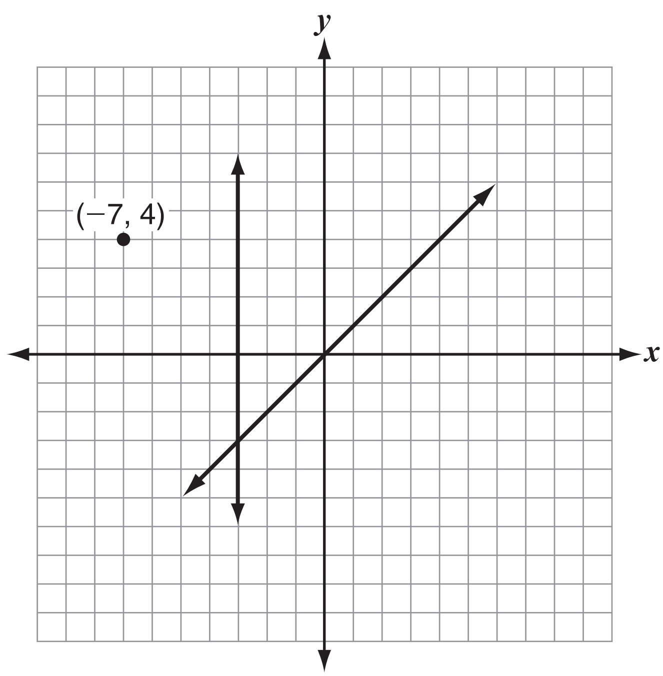
**A.** $(0, -12)$

**B.** $(0, -8)$

**C.** $(0, 8)$

**D.** $(0, 12)$

**21.** **The point $(-7, 4)$ is reflected over the line $x = -3$. Then, the resulting point is reflected over the line $y = x$. Where is the point located after both reflections?**




**A.** $(-10, -7)$

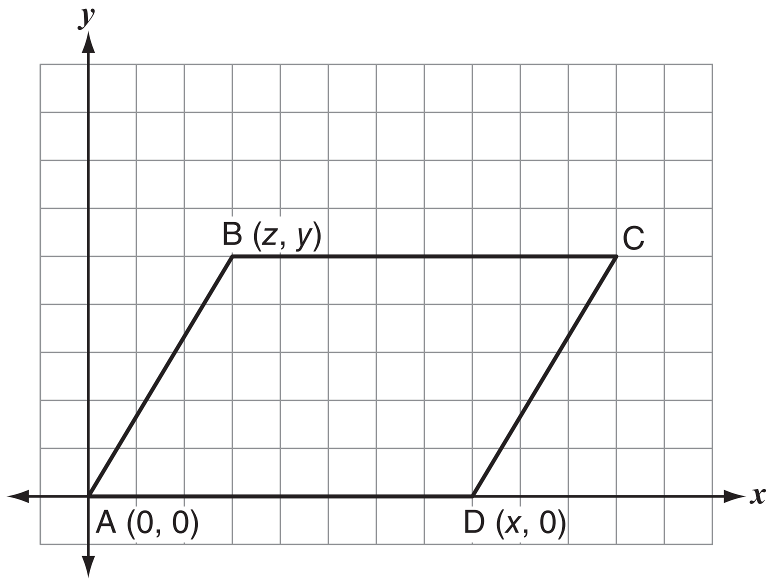
**B.** $(1, 4)$

**C.** $(4, -7)$

**D.** $(4, 1)$

*Go On* ▶

**22.** **Parallelogram ABCD is graphed on the coordinate plane shown below.**




**What are the coordinates of point C?**

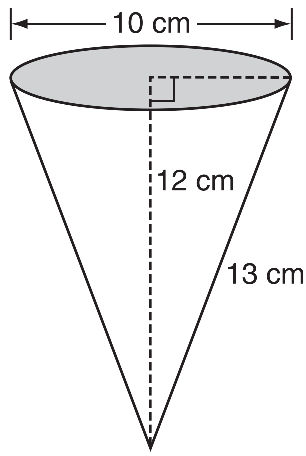
**A.** $(x, y)$

**B.** $(y, x + z)$

**C.** $(x + z, y)$

**D.** $(x - z, y)$

**23. An ice cream company needs to know how much ice cream can fit into its new ice cream cones.**




(Not drawn to scale)

**Using 3.14 for $\pi$, approximately how much ice cream will fill the cone level with the top?**

**A.** 188 $cm^3$

**B.** 314 $cm^3$

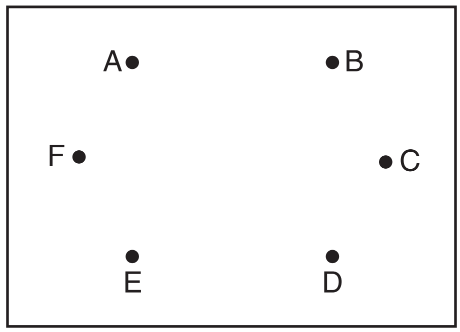
**C.** 340 $cm^3$

**D.** 942 $cm^3$

*Go On* ►

**24.** **A network of electrical wires will be constructed so that each of the six points on the board is directly connected to each other point by a piece of wire. The diagram shows the board with points A, B, C, D, E, and F.**

**Board**




**How many pieces of wire are needed to make the network?**

**A.** 6

**B.** 10

**C.** 15

**D.** 30

**25. The table shows prices for different numbers of pencils. The price continues to increase in this pattern.**

| Number of Pencils | Price |
|---|---|
| 5 | \$ 0.60 |
| 10 | \$ 1.20 |
| 24 | \$ 2.88 |

$x$ = number of pencils

$y$ = total price

**Which equation models this situation?**

**A.** $y = 0.12x$

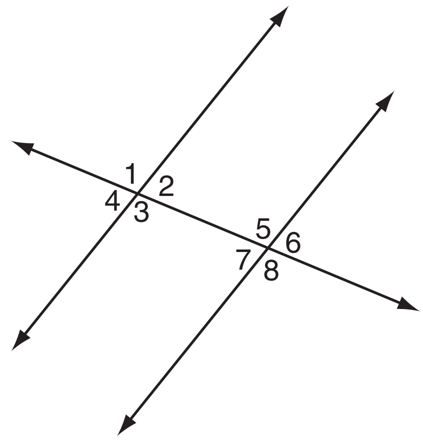
**B.** $y = 0.6x$

**C.** $y = 0.12x + 5$

**D.** $y = 0.6x + 5$

*Go On* ▶

**26.** **Given the diagram below, what information is needed to prove that the lines are parallel?**



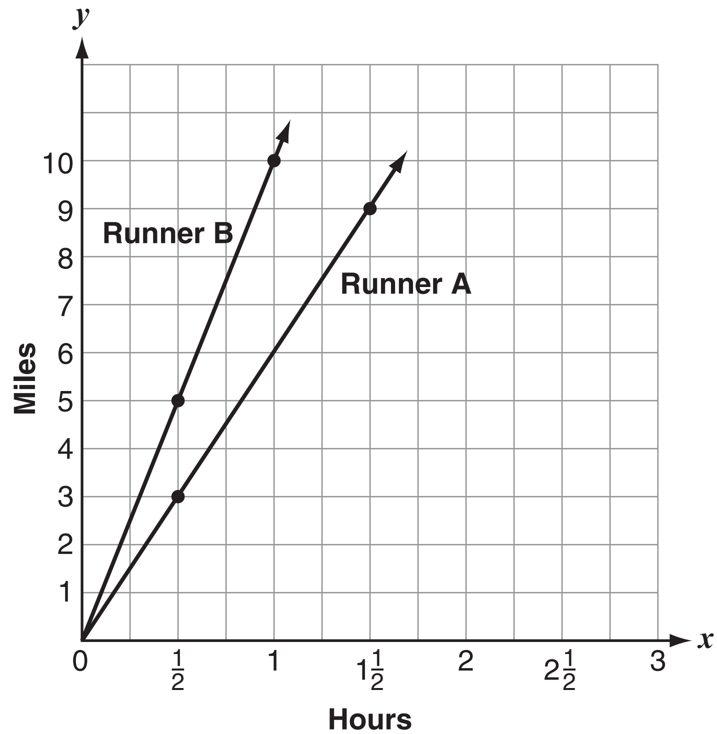

**A.** $m\angle 1 = m\angle 3$

**B.** $m\angle 1 = m\angle 6$

**C.** $m\angle 1 = m\angle 7$

**D.** $m\angle 1 = m\angle 8$

**27.** **The graph below shows the distance, as a function of time, for two runners.**




**Which runner was faster, and by how much?**

**A.** runner A, by 2 miles per hour

**B.** runner B, by 2 miles per hour

**C.** runner A, by 4 miles per hour

**D.** runner B, by 4 miles per hour

*Go On* ▶

**28.** **Kristina plots a triangle with vertices (−2, 3), (0, 0), and (6, 4) on a coordinate plane. If each unit on the coordinate plane represents one meter (m), what is the perimeter of her triangle, to the nearest tenth of a meter?**

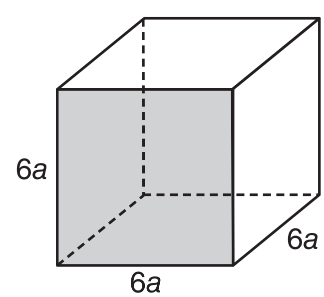
**A.** 11.6 m

**B.** 15.3 m

**C.** 18.9 m

**D.** 22.8 m

**29.** **What is the volume of the cube shown below?**



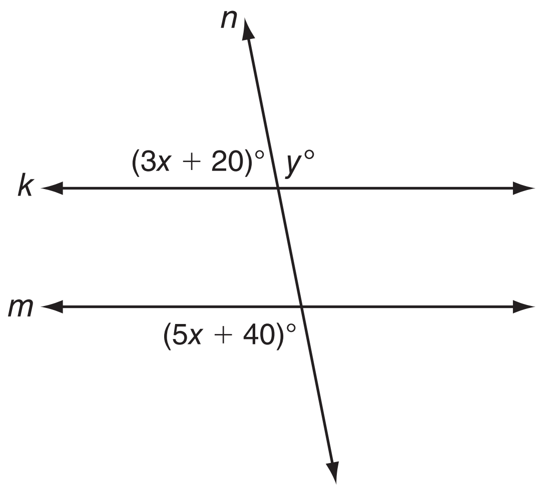

**A.** $18a$

**B.** $18a^3$

**C.** $216a$

**D.** $216a^3$

**30.** **In the figure below, $k \parallel m$.**




(Not drawn to scale)

**What is the value of $y$?**

**A.** $y = 15$

**B.** $y = 70$

**C.** $y = 115$

**D.** $y = 120$

**31.** **If both of the statements below are true, which statement is a logical conclusion?**

**Some triangles are isosceles triangles.**

**All isosceles triangles have two congruent sides.**

**A.** All triangles have two congruent sides.

**B.** Some triangles have two congruent sides.

**C.** Some isosceles triangles have three congruent sides.

**D.** All figures with two congruent sides are isosceles triangles.

*Go On* ▶

**32.** **Which classification describes $\triangle MNO$ with vertices M(2, $^{-}3$), N(3, 1), and O($^{-}3$, 1)?**

**A.** equilateral

**B.** isosceles

**C.** right

**D.** scalene

**33.** **A family invested $2,000 into an account that pays 2% interest compounded annually. In the functions below, *x* = time in years and *y* = total amount in the account after *x* years.**

$$y = 40x + 2{,}000$$
$$y = 2{,}000(1.02)^{x}$$

**Use the function that models the situation correctly. To the nearest dollar, how much money is in the family's account after 5 years?**

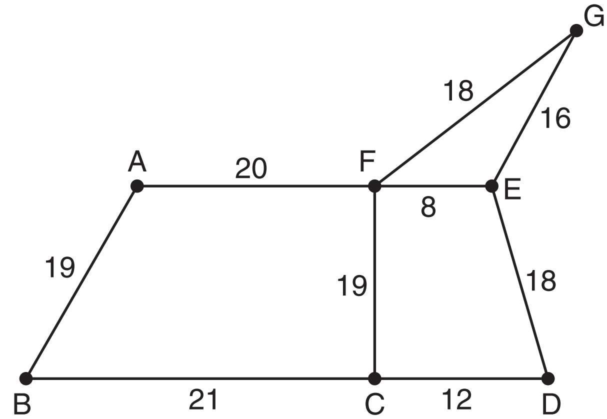
**A.** $2,081

**B.** $2,200

**C.** $2,208

**D.** $10,200

**34.** **The numbers in the drawing below represent distance, in miles, between towns.**




(Not drawn to scale)

**If Scott is at Town B, what is the shortest possible route he can take from Town B to Town G if he must travel through Town C?**

**A.** 57 miles

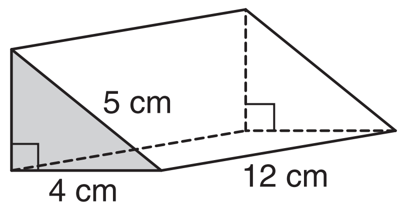
**B.** 58 miles

**C.** 64 miles

**D.** 70 miles

*Go On* ►

**35.** **What is the surface area of the solid shown below?**




**A.** 72 $cm^2$

**B.** 144 $cm^2$

**C.** 156 $cm^2$

**D.** 184 $cm^2$

**36.** **Two students started at the coordinate (0, 0). Student A walked 7 units east and 5 units south. Student B walked 4 units west and 1 unit south. How many units apart are the students?**

**A.** 11

**B.** $\sqrt{137}$

**C.** $\sqrt{153}$

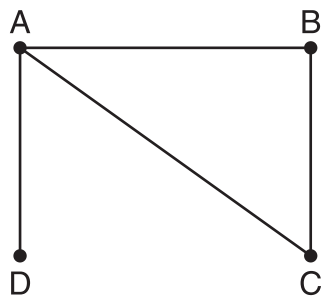
**D.** $\sqrt{157}$

**37.** **A school district has the following high school committee officers.**

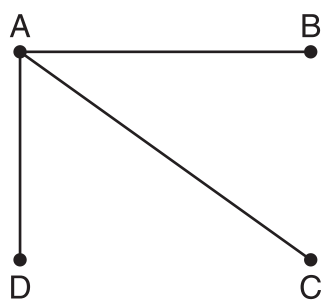
- **Committee A: Amber, Calipso, Juan**
- **Committee B: Megan, Amber, Sam**
- **Committee C: Calipso, Sam, Amanda**
- **Committee D: Jerrad, Roberto, Danielle, Juan**

**The committees are represented with vertices. If two committees share a person, connect the vertices with an edge. Which graph will allow all committee members to attend the meetings to which they are assigned?**

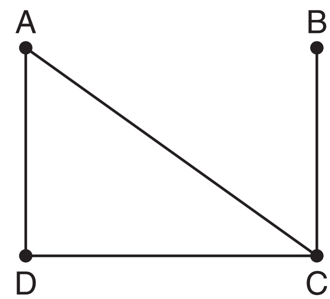
**A.**



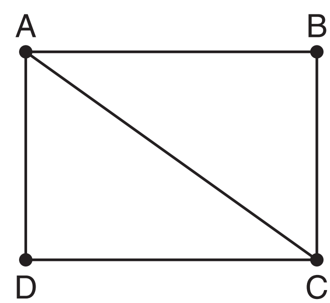

**B.**




**C.**

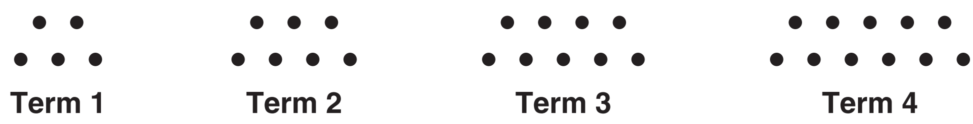



**D.**




***Go On*** ▶

**38.** **The figure below shows a pattern of dots.**




**Which equation models the number of dots in the *n*th term?**

$n$ = term number

$a_n$ = number of dots in the $n$th term

**A.** $a_n = 5n$

**B.** $a_n = 2n + 3$

**C.** $a_n = 2n + 5$

**D.** $a_n = 3n + 2$

**39.** **On a coordinate plane, a shape is plotted with vertices of (3, 1), (0, 4), (3, 7), and (6, 4). What is the area of the shape if each grid unit equals one centimeter?**

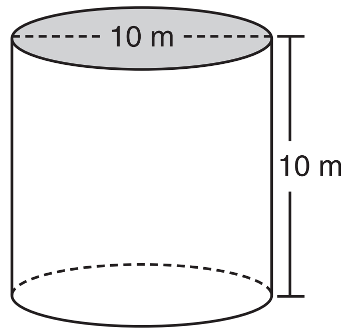
**A.** 18 $cm^2$

**B.** 24 $cm^2$

**C.** 36 $cm^2$

**D.** 42 $cm^2$

**40. A company makes sealed metal water tanks, as shown below.**




**To the nearest square meter, how much sheet metal does the company need to make one tank?**

**A.** 314 $m^2$

**B.** 471 $m^2$

**C.** 785 $m^2$

**D.** 942 $m^2$

STOP