

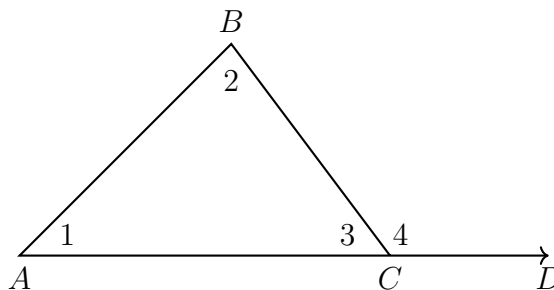
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### 8.8 Unit exam: Regents standards

1. What is the sum of the measures of two complementary angles? HSG.CO.C.10

- (a)  $45^\circ$  (c)  $120^\circ$   
 (b)  $90^\circ$  (d)  $180^\circ$

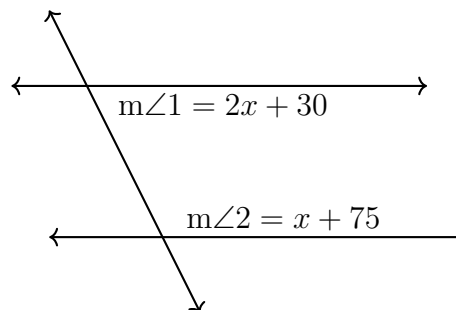
2. Given  $\triangle ABC$  with  $\overrightarrow{ACD}$ . HSG.CO.C.10



Which equation is always true?

- (a)  $m\angle 4 = m\angle 1 + m\angle 2$  (c)  $m\angle 3 = m\angle 1 + m\angle 2$   
 (b)  $m\angle 4 = m\angle 3 - m\angle 2$  (d)  $m\angle 3 = m\angle 1 - m\angle 2$
3. A regular octagon is rotated about its center. Which degree measure will carry the polygon onto itself?
- (a)  $45^\circ$  (c)  $90^\circ$   
 (b)  $60^\circ$  (d)  $135^\circ$
4. Two parallel lines intersect a transversal. The same side interior angles measure  $m\angle 1 = 2x + 30$  and  $m\angle 2 = x + 75$ . What is the value of  $x$ ?

- (a)  $25^\circ$   
 (b)  $34^\circ$   
 (c)  $45^\circ$   
 (d)  $53^\circ$



5. In the line segment  $\overline{ABC}$ ,  $\overline{AB}$  is twice as long as  $\overline{BC}$ .  $AB = 12x - 6$  and  $AC = 15x + 9$ . Find  $BC$ .

(a) 31 (c) 36  
(b) 33 (d) 42

6. What is the midpoint of  $\overline{AB}$ , with  $A(1.7, -2)$  and  $B(4.5, -5.2)$ ? GPE.B.6

(a)  $(0.3, -7.2)$  (c)  $(7.2, -3.2)$   
(b)  $(3.6, -1.6)$  (d)  $(3.1, -3.6)$

7.

8. The endpoints of directed line segment  $PQ$  have coordinates of  $P(-7, -5)$  and  $Q(5, 3)$ . What are the coordinates of point  $A$ , on  $\overline{PQ}$ , that divide  $\overline{PQ}$  into a ratio of 1:3?

(a)  $(3, 3)$  (c)  $(5, 6)$   
(b)  $(4, 4.5)$  (d)  $(8, 0.5)$

9. The base of a pyramid is a rectangle with a width of 4.6 cm and a length of 9 cm. What is the height, in centimeters, of the pyramid if its volume is  $82.8 \text{ cm}^3$ ? HSG.GMD.A.3

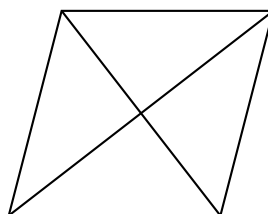
(a) 6 (c) 8  
(b) 7 (d) 10

10. Lou has a solid clay brick in the shape of a rectangular prism with a length of 8 inches, a width of 3.5 inches, and a height of 2.25 inches. If the clay weighs  $1.055 \text{ oz/in}^3$ , how much does Lou's brick weigh, to the nearest ounce?

(a) 53 (c) 66  
(b) 59 (d) 71

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11. Which three-dimensional figure will result when a rectangle 6 inches long and 5 inches wide is continuously rotated about the longer side?
- (a) a rectangular prism with a length of 6 inches, width of 6 inches, and height of 5 inches
  - (b) a rectangular prism with a length of 6 inches, width of 5 inches, and height of 5 inches
  - (c) a cylinder with a radius of 5 inches and a height of 6 inches
  - (d) a cylinder with a radius of 6 inches and a height of 5 inches
12. The figure below shows a rhombus with noncongruent diagonals.



- Which transformation would *not* carry this rhombus onto itself?
- (a) a reflection over the shorter diagonal
  - (b) a reflection over the longer diagonal
  - (c) a clockwise rotation of  $90^\circ$  about the intersection of the diagonals
  - (d) a counterclockwise rotation of  $180^\circ$  about the intersection of the diagonals
13. What is the slope of a line perpendicular to the line with the equation  $y = -2x - 15$ ?
- (a)  $-\frac{1}{2}$
  - (b)  $\frac{1}{2}$
  - (c)  $-2$
  - (d)  $2$
14. What is an equation of the line that passes through the point  $(-3, 7)$  and is perpendicular to a line with equation  $y = \frac{2}{3}x + 5$ ?
- (a)  $y - 7 = -\frac{3}{2}(x + 3)$
  - (b)  $y - 7 = \frac{3}{2}(x - 3)$
  - (c)  $y + 7 = \frac{3}{2}(x + 3)$
  - (d)  $y + 7 = -\frac{3}{2}(x - 3)$
15. What is an equation of the image of the line  $y = \frac{3}{2}x - 4$  after a translation down two?
- (a)  $y = \frac{3}{2}x - 2$
  - (b)  $y = \frac{3}{2}x - 6$
  - (c)  $y = -\frac{2}{3}x - 2$
  - (d)  $y = -\frac{2}{3}x - 6$

16. What equation represents a line with a  $y$ -intercept of  $b = -5$  that is parallel to the line represented by  $y = \frac{2}{5}x + 1$ ?

(a)  $y = \frac{5}{2}x - 5$

(c)  $y = \frac{2}{5}x - 5$

(b)  $y = \frac{5}{2}x + 5$

(d)  $y = \frac{2}{5}x + 5$

17. Determine and state an equation of the line perpendicular to the line  $2x - y = 7$  and passing through the point  $(3, 11)$ .

(a)  $y - 11 = -\frac{1}{2}(x - 3)$

(c)  $y + 11 = 2(x - 3)$

(b)  $y - 11 = \frac{1}{2}(x - 3)$

(d)  $y + 11 = -2(x - 3)$

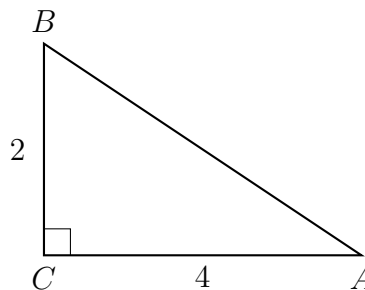
18. In the diagram below of right triangle  $ABC$ ,  $AC = 4$ , and  $BC = 2$ . Find the length  $AB$  using the Pythagorean theorem.

(a) 6

(b)  $2\sqrt{5}$

(c)  $5\sqrt{2}$

(d)  $\sqrt{12}$



19. What is the distance between the points  $(1, 11)$  and  $(7, 2)$  rounded to *the nearest tenth*?

(a) 7.7

(c) 8.8

(b) 8.1

(d) 10.8

20. Rhombus  $BECA$  has vertices  $B(3, 2)$ ,  $E(7, 5)$ ,  $C(11, 2)$ , and  $A(7, 5)$ . What is the perimeter of rhombus  $BECA$ ?

(a) 25

(c) 28

(b) 27

(d) 32