8.8 Unit exam: Regents standards **v2**

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

   (a) 45° (c) 120°

   (b) 90° (d) 180°

2. A regular octagon is rotated about its center. Which degree measure will carry the polygon onto itself?

   (a) 30° (c) 60°

   (b) 45° (d) 72°

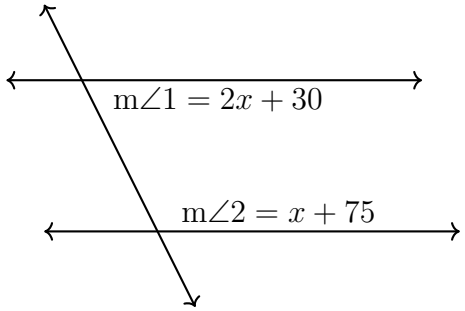
3. Two parallel lines intersect a transversal. The same side interior angles measure $\text{m}\angle 1 = 2x + 30$ and $\text{m}\angle 2 = x + 75$. What is the value of x?

   (a) 25°

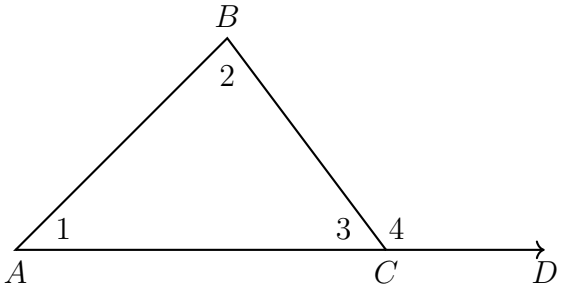
   (b) 34°

   (c) 45°

   (d) 53°



4. Given $\triangle ABC$ with $\overleftrightarrow{ACD}$. HSG.CO.C.10



   Which equation is always true?

   (a) $m\angle 4 = m\angle 3 - m\angle 2$ (c) $m\angle 3 = m\angle 1 - m\angle 2$

   (b) $m\angle 3 = m\angle 1 + m\angle 2$ (d) $m\angle 4 = m\angle 1 + m\angle 2$

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

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

6. 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) $(-1, -1)$
   (b) $(-4, -6)$
   (c) $(-4, -3)$
   (d) $(-6, -4)$

7. 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
   (b) 33
   (c) 36
   (d) 42

8. 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 oz/in^3, how much does Lou's brick weigh, to the nearest ounce?

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

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 cm^3? HSG.GMD.A.3

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

10. 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

11. 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) $y + 7 = -\frac{3}{2}(x - 3)$

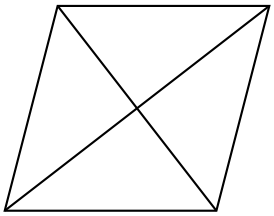
12. What is an equation of the image of the line $y = \frac{3}{2}x - 4$ after a translation down two?

    (a) $y = \frac{3}{2}x - 2$
    (b) $y = \frac{3}{2}x - 6$
    (c) $y = -\frac{2}{3}x - 2$
    (d) $y = -\frac{2}{3}x - 6$

13. 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

14. 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° about the intersection of the diagonals
    (d) a counterclockwise rotation of 180° about the intersection of the diagonals

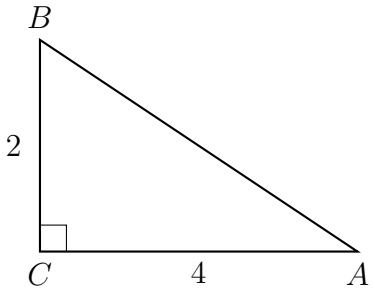
15. In the diagram below of right triangle ABC, $AC = 4$, and $BC = 2$. Find the length AB using the Pythagorean theorem.

(a) 6

(b) $2\sqrt{5}$

(c) $5\sqrt{2}$

(d) $\sqrt{12}$



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

(a) 7.7

(b) 8.1

(c) 8.8

(d) 10.8

17. Rhombus $BECA$ has vertices $B(3, 2)4$, $E(7, 5)$, $C(11, 2)$, and $A(7, 5)$. What is the perimeter of rhombus $BECA$?

(a) 16

(b) 18

(c) 20

(d) 24

18. Which point is further from the origin, $(-13, 0)$ or $(5, -12)$?

(a) $(-13, 0)$

(b) $(5, -12)$

(c) both are equidistant from the origin

(d) one or more distance is undefined

19. 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) $y = \frac{5}{2}x - 5$

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

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

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

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

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

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

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

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