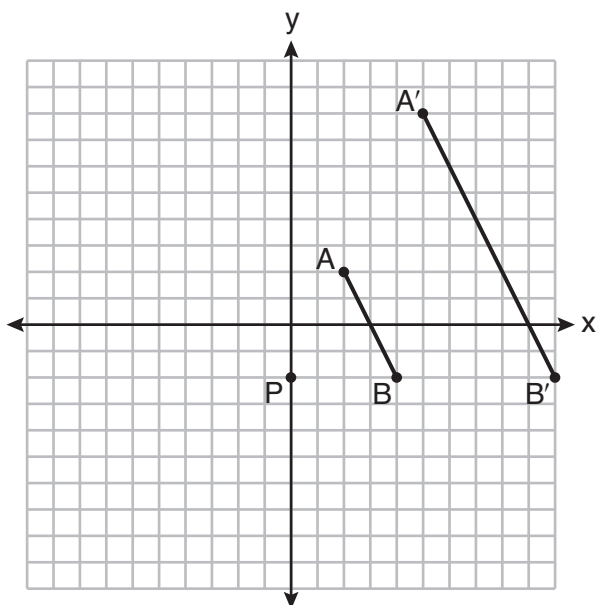


Part I

Answer all 24 questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For each statement or question, choose the word or expression that, of those given, best completes the statement or answers the question. Record your answers on your separate answer sheet. [48]

Use this space for computations.

- 1 On the set of axes below, \overline{AB} is dilated by a scale factor of $\frac{5}{2}$ centered at point P .



Which statement is always true?

- (1) $\overline{PA} \cong \overline{AA'}$ (3) $AB = A'B'$
 (2) $\overline{AB} \parallel \overline{A'B'}$ (4) $\frac{5}{2}(A'B') = AB$
- 2 The coordinates of the vertices of parallelogram $CDEH$ are $C(-5,5)$, $D(2,5)$, $E(-1,-1)$, and $H(-8,-1)$. What are the coordinates of P , the point of intersection of diagonals \overline{CE} and \overline{DH} ?
- (1) $(-2,3)$ (3) $(-3,2)$
 (2) $(-2,2)$ (4) $(-3,-2)$

Use this space for computations.

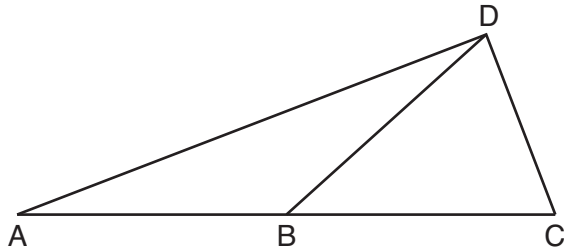
3 The coordinates of the endpoints of \overline{QS} are $Q(-9,8)$ and $S(9,-4)$. Point R is on \overline{QS} such that $QR:RS$ is in the ratio of 1:2. What are the coordinates of point R ?

- (1) $(0,2)$ (3) $(-3,4)$
(2) $(3,0)$ (4) $(-6,6)$

4 If the altitudes of a triangle meet at one of the triangle's vertices, then the triangle is

- (1) a right triangle (3) an obtuse triangle
(2) an acute triangle (4) an equilateral triangle

5 In the diagram below of $\triangle ACD$, \overline{DB} is a median to \overline{AC} , and $\overline{AB} \cong \overline{DB}$.



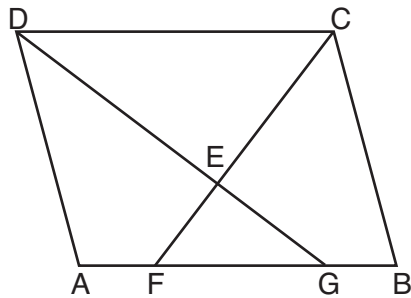
If $m\angle DAB = 32^\circ$, what is $m\angle BDC$?

- (1) 32° (3) 58°
(2) 52° (4) 64°

Use this space for computations.

- 6 What are the coordinates of the center and the length of the radius of the circle whose equation is $x^2 + y^2 = 8x - 6y + 39$?
- (1) center $(-4,3)$ and radius 64
 - (2) center $(4,-3)$ and radius 64
 - (3) center $(-4,3)$ and radius 8
 - (4) center $(4,-3)$ and radius 8

- 7 In the diagram below of parallelogram $ABCD$, \overline{AFGB} , \overline{CF} bisects $\angle DCB$, \overline{DG} bisects $\angle ADC$, and \overline{CF} and \overline{DG} intersect at E .

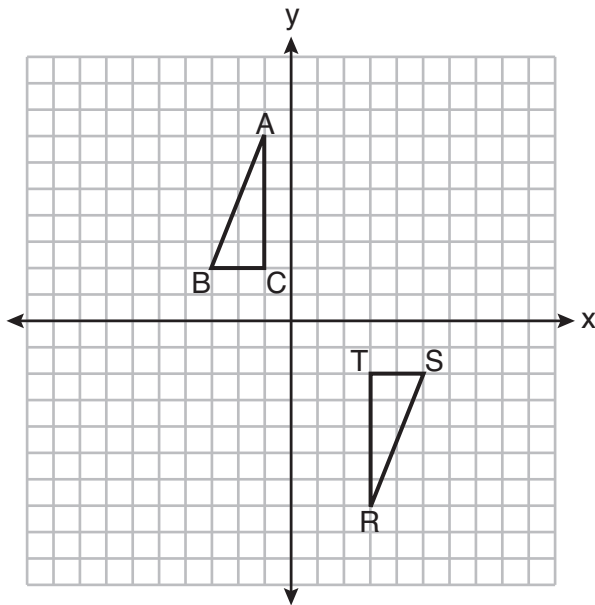


If $m\angle B = 75^\circ$, then the measure of $\angle EFA$ is

- (1) 142.5°
 - (2) 127.5°
 - (3) 52.5°
 - (4) 37.5°
- 8 What is an equation of a line that is perpendicular to the line whose equation is $2y + 3x = 1$?
- (1) $y = \frac{2}{3}x + \frac{5}{2}$
 - (2) $y = \frac{3}{2}x + 2$
 - (3) $y = -\frac{2}{3}x + 1$
 - (4) $y = -\frac{3}{2}x + \frac{1}{2}$

Use this space for
computations.

9 Triangles ABC and RST are graphed on the set of axes below.



Which sequence of rigid motions will prove $\triangle ABC \cong \triangle RST$?

- (1) a line reflection over $y = x$
 - (2) a rotation of 180° centered at $(1,0)$
 - (3) a line reflection over the x -axis followed by a translation of 6 units right
 - (4) a line reflection over the x -axis followed by a line reflection over $y = 1$
- 10 If the line represented by $y = -\frac{1}{4}x - 2$ is dilated by a scale factor of 4 centered at the origin, which statement about the image is true?
- (1) The slope is $-\frac{1}{4}$ and the y -intercept is -8 .
 - (2) The slope is $-\frac{1}{4}$ and the y -intercept is -2 .
 - (3) The slope is -1 and the y -intercept is -8 .
 - (4) The slope is -1 and the y -intercept is -2 .