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CC Geometry

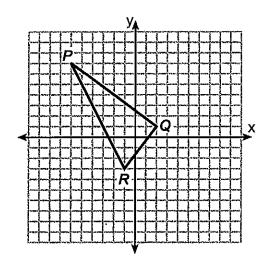
Unit 5 Test Review

- What are the coordinates of the midpoint of the 6) line segment whose endpoints are (7,-2) and (-1,5)?
 - A) (6,3) C) (3,1.5)
 - B) (4,-4) D) (1.5,3)
- 2) An equation of the image of the line with equation y = 3x - 2 under the dilation D_3 is
 - A) y = 3x 6 C) $y = -\frac{1}{3}x 2$
 - B) y = x 6 D) y = 3x 2
- 3) What is an equation of the line that is parallel to the x-axis and that passes through the point (5,3)?
 - A) x = 3B) x = 5C) y = 3D) y = 5
- 4) If M(4,-8) is the midpoint of AB and the coordinates of A are (5,-3), what are the coordinates of B?
 - A) $(4\frac{1}{2},5\frac{1}{2})$ C) (-1,-5) B) (3,-13) D) (9,11)
- 5) Point T lies on the directed segment from R(5,-4) to S(-5,1). What are the coordinates of point T if it divides segemnt RS in the ratio of 2 to 3?

A)	(3,-3)	C)	(-1,-1)
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B) (-3,0) D) (1,-2)

On the set of axes below, the vertices of $\triangle PQR$ have coordinates P(-6,7), Q(2,1), and R(-1,-3).



What is the area of $\triangle PQR$?

- A)
 25 units²
 C)
 20 units²

 B)
 10 units²
 D)
 50 units²
- 7) Which equation represents the perpendicular bisector of \overline{AB} whose endpoints are A(8,2) and B(0,6)?

A)
$$y = -\frac{1}{2}x + 2$$

B) $y = -\frac{1}{2}x + 6$
C) $y = 2x - 4$
D) $y = 2x - 12$

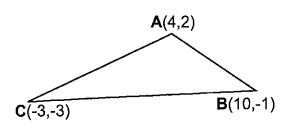
8) What is the slope of the line passing through (-2,3) and (5,7)?

A)
$$\frac{4}{7}$$
 C) $\frac{7}{4}$
B) $-\frac{4}{7}$ D) $\frac{10}{3}$

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9)	What is the slope of a line that is perpendicular to the line whose equation is $5y + 2x = 12$?	15)	Show that the line joining A(3,3) and B(4,6) is parallel to the line joining C(5,0) and D(6,3).
	A) $-\frac{5}{2}$ C) 2		
	B) $\frac{2}{5}$ D) $\frac{5}{2}$		
10)) What is the length of the line segment whose endpoints are (1,1) and (3,-3)?		
	A) $4\sqrt{2}$ B) $2\sqrt{5}$ C) $2\sqrt{2}$ D) 10	16)	Show that the line joining P(5,8) and Q(11,10) is perpendicular to the line joining R(0,4) and S(1,1).
11)	 Which one of the following statements describes the graph of the equation x = 3? A) It passes through the origin. B) It has a slope of 3. C) It is parallel to the x-axis. D) It is parallel to the y-axis. 		
12)	The vertices of square <i>RSTV</i> have coordinates $R(-1,5)$, $S(-3,1)$, $T(-7,3)$, and $V(-5,7)$. What is the perimeter of <i>RSTV</i> ? A) $4\sqrt{40}$ C) $\sqrt{40}$ B) $4\sqrt{20}$ D) $\sqrt{20}$	17)	The equations of two lines are $x + 2y = 8$ and $y = -\frac{1}{2}x + 5$. Determine whether these lines are parallel, perpendicular, or neither.
13)	What is the length of the radius of a circle whose center is at (6,0) and passes through (2,-3)? A) 5 C) 11 D) 7		
14)	 B) 4 D) 7 In a circle, the coordinates of the endpoints of a diameter are (4,5) and (10,1). What are the coordinates of the center of the circle? 	18)	If the endpoints of the diameter of a circle are (3,1) and (6,5), find the length of the diameter.

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19) Determine, to the *nearest* tenth, the perimeter of the triangle shown in the accompanying diagram. [Show all work.]



20) Write an equation of the line parallel to the line 2y - x = 8 and passing through the point (5,7).

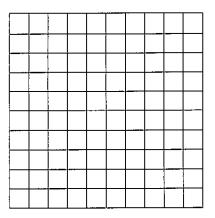
22) Line segment AB has endpoints A(-5,7) and B(2,-4). What is the slope of the perpendicular bisector of AB?

Point J lies on the directed segment from P(-3,-8) to Q(2,7). If point J divides segment PQ in the ratio of 4 to 1, then find the coordinates of point J. [Show all work.]

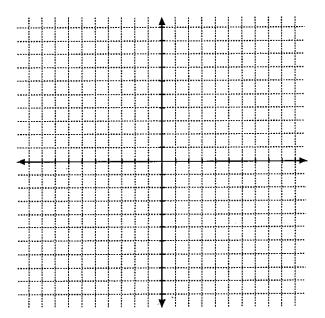
- 21) Write an equation of the line perpendicular to the line y = 4x - 9 and passing through the point (3,2).
- AB is a directed line segment from A(11,-6) to B(-10,8). Point C lies on AB and divides it in the ratio of 3 to 4. Find the coordinates of point C. [Show all work.]

25) Using the coordinate grid below, find the area of quadrilateral *ABCD* with vertices *A*(-4,2), *B*(0,5), *C*(3,3), and *D*(1,-5). [*Show all work*.]

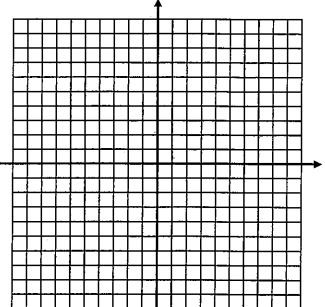
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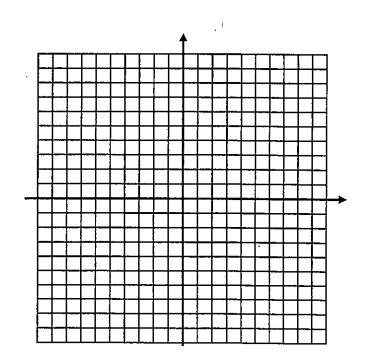
26) Prove that the triangle with vertices D(0,3), E(1,6), and F(2,4) is an isosceles right triangle.



27) Ashanti is surveying for a new parking lot shaped like a parallelogram. She knows that three of the vertices of parallelogram ABCD are A(0, 0), B(5, 2), and C(6, 5). Find the coordinates of point D and sketch parallelogram ABCD on the accompanying set of axes. Justify mathematically that the figure you have drawn is a parallelogram.



28) Jim is experimenting with a new drawing program on his computer. He created quadrilateral TEAM with coordinates T(-2, 3), E(-5,-4), A(2,-1), and M(5, 6). Jim believes that he has created a rhombus but not a square. Prove that Jim is correct. [The use of the grid is optional.]



WORK SHOWN: $A(-\frac{1}{2}) + A_{1}(-\frac{1}{2}) + A_{11}(-\frac{1}{2}) + A_{1$	23) $J(1,4)$ WORK SHOWN: $P(-3,-8) = (x_1,y_1), Q(2,7) = (x_2,y_2); \text{ natio} = \frac{4}{1} = \frac{a}{5}, k = -\frac{a}{a+b} = -\frac{4}{5}; \text{ partition point } (x,y) = (x_1 + k(x_2 - x_1)y_1 + k(y_2 - y_1)) = (-3 + \frac{4}{5}(2 - (-3))) = (-3 + \frac{4}{5}(3), 8 + \frac{4}{5}(15)) = (-3 + 4, -8 + 12) = (1, 4)$ 24) $C(2,0)$ WORK SHOWN: $A(11,-6) = (x_1,y_1), B(-10,8) = (x_2,y_2); \text{ ratio} = \frac{3}{4} = \frac{a}{b}, k = -\frac{a}{a+b} = -\frac{3}{3+4} = -\frac{3}{7}; \text{ partition point } (x_2,y) = (x_1 + k(x_2 - x_1)y_1 + k(y_2 - y_1)) = (11 + \frac{3}{7}(10 - (11)), -6 + \frac{3}{7}(8 - (-6))) = (11 + \frac{3}{7}(-21), -6 + \frac{3}{7}(14)) = (11 + 9, -6 + 6) = (2,0)$ 25) 35.5 units^2 $y_1 = \frac{y_1}{10}, \frac{y_1}{10},$	17) parallel 18) 5 19) 28.5 20) SAMPLE ANSWER: $y \cdot 7 = \frac{1}{2}(x - 5)$ 21) SAMPLE ANSWER: $y - 2 = -\frac{1}{4}(x - 3)$ 22) $\frac{7}{11}$	H > 0
Slope $TE = \frac{-4-3}{-5-(-3)} = \frac{-7}{-3} = \frac{-7}{-3}$ Slope $EA = \frac{-1-(-4)}{2-(-5)} = \frac{-3}{-7} = \frac{-7}{-7}$	ABII CD and BC 11AD ABCD is a perallelogram sides 11: 28) TE = $\sqrt{(-5-(-2))^2 + (-4-5)^2} = \sqrt{58}$ AM = $\sqrt{(2-(-5))^2 + (-4-(-1))^2} = \sqrt{58}$ TM = $\sqrt{(2-(-2))^2 + (-4-(-1))^2} = \sqrt{58}$	A triangk with a right 2. At hangk with a right 2. At biosceles right Δ . At bint $D(1,3)$ Slope AB = $\frac{a-0}{5-0} = \frac{2}{5}$ slope slope BC = $\frac{5-2}{6-5} = \frac{3}{7} = 3$ slope	20) $EF = \sqrt{(2-1)^2 + (4-1)^2} = \sqrt{5}$ slope $DF = \sqrt{(2-0)^2 + (4-3)^2} = \sqrt{5}$ slope $EF \stackrel{?}{=} DF$ because they have EF the same length F F
TE and EA are not I because their slops are not opposite recipiocals TEAM is not a square because it does not have a vight L	ABJICD and BC 11AD because they have the same stope ABCD is a perallelogram because it has both pair of opp sides 11: 5-(2))2+(-1-(-1))2 = J58 TERE EA EAME TH because they are (5-2)2+(6-(-1))2 = J58 the same length. TEAM is a knowledge (5-(2))2+(6-(-1))2 = J58 because it has the sides	A triangk with a right 2 and 2 \cong sides is an interval isosceres right Δ . At $D(1,3)$ At $B = \frac{2-0}{5-0} = \frac{2}{5}$ slope $CD = \frac{5-3}{6-1} = \frac{2}{5}$ pr $BC = \frac{5-2}{6-5} = \frac{3}{1} = 3$ slope $CD = \frac{5-3}{6-1} = \frac{2}{5}$	slope EF= 116 = -2 slope DF= 1-3 = 1 EFM DF because they have opposite reconnective slopes AF is a right angle ble 1 lines form right 25