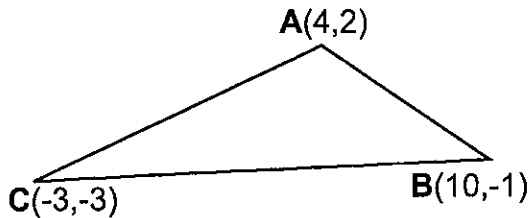


- 9) What is the slope of a line that is perpendicular to the line whose equation is $5y + 2x = 12$?
- A) $-\frac{5}{2}$ C) 2
B) $\frac{2}{5}$ D) $\frac{5}{2}$
- 10) What is the length of the line segment whose endpoints are (1,1) and (3,-3)?
- A) $4\sqrt{2}$ C) $2\sqrt{2}$
B) $2\sqrt{5}$ D) 10
- 11) 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 $RSTV$ have coordinates $R(-1,5)$, $S(-3,1)$, $T(-7,3)$, and $V(-5,7)$. What is the perimeter of $RSTV$?
- A) $4\sqrt{40}$ C) $\sqrt{40}$
B) $4\sqrt{20}$ D) $\sqrt{20}$
- 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
B) 4 D) 7
- 14) 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?
- 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).
- 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).
- 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.
- 18) If the endpoints of the diameter of a circle are (3,1) and (6,5), find the length of the diameter.

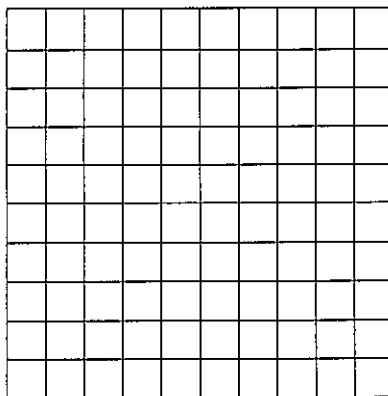
- 19) Determine, to the *nearest tenth*, the perimeter of the triangle shown in the accompanying diagram. [Show all work.]



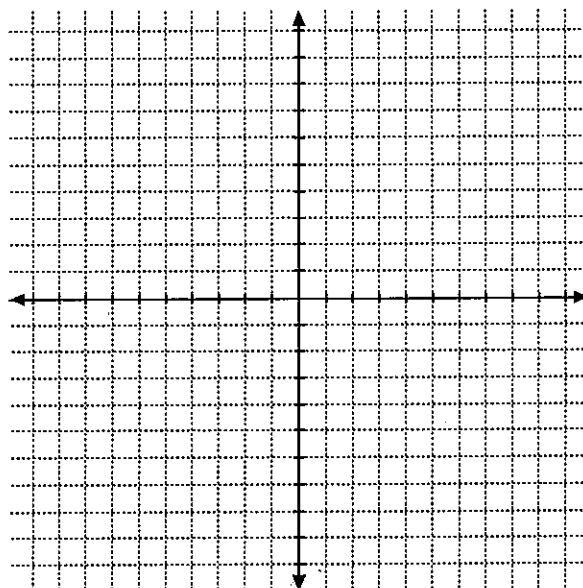
- 22) Line segment \overline{AB} has endpoints A(-5,7) and B(2,-4). What is the slope of the perpendicular bisector of \overline{AB} ?
- 23) Point J lies on the directed segment from $P(-3,-8)$ to $Q(2,7)$. If point J divides segment PQ in the ratio of 4 to 1, then find the coordinates of point J . [Show all work.]
- 24) \overline{AB} is a directed line segment from A(11,-6) to B(-10,8). Point C lies on \overline{AB} and divides it in the ratio of 3 to 4. Find the coordinates of point C . [Show all work.]

- 20) Write an equation of the line parallel to the line $2y - x = 8$ and passing through the point (5,7).
- 21) Write an equation of the line perpendicular to the line $y = 4x - 9$ and passing through the point (3,2).

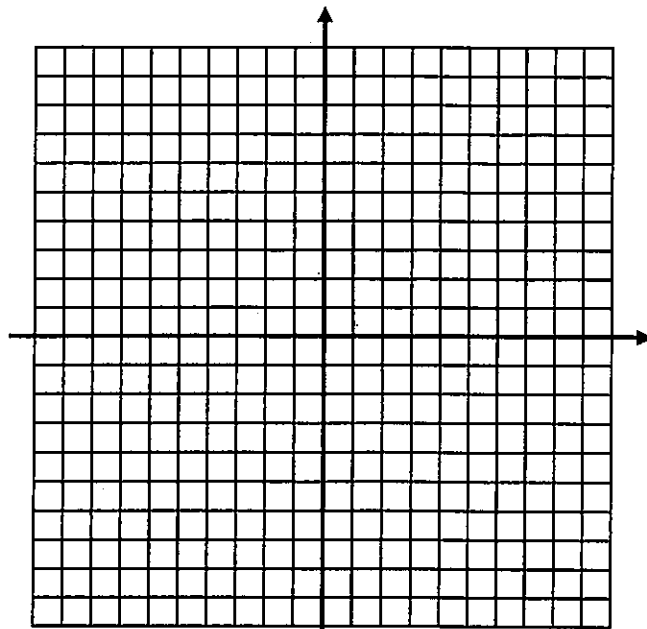
- 25) Using the coordinate grid below, find the area of quadrilateral $ABCD$ with vertices $A(-4,2)$, $B(0,5)$, $C(3,3)$, and $D(1,-5)$. [Show all work.]



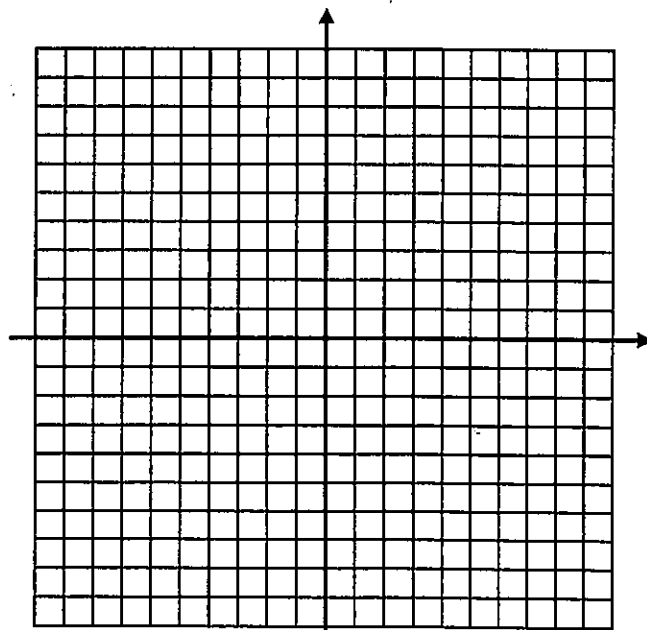
- 26) Prove that the triangle with vertices $D(0,3)$, $E(1,6)$, and $F(2,4)$ is an isosceles right triangle.



- 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.]



Answer Key 3948-1-Page 1
 Coordinate Geometry
 Test Review

- 1) C 2) A 3) C 4) B 5) D
 6) A 7) C 8) A 9) D 10) B
 11) D 12) B 13) A

14) (7,3)
 slopes of AB and CD = 3

15) slope of PQ = $-\frac{1}{3}$, slope of RS = -3

16) parallel

17) 5

18) 28.5

19) SAMPLE ANSWER: $y - 7 = \frac{1}{2}(x - 5)$

20) SAMPLE ANSWER: $y - 2 = -\frac{1}{4}(x - 3)$

21) $\frac{7}{11}$

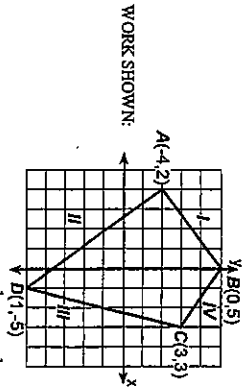
22) J(1,4)

WORK SHOWN: P(-3,8) = (x₁,y₁), Q(2,7) = (x₂,y₂); ratio = $\frac{4}{1} = \frac{a}{b}$, $k = \frac{a}{a+b} = \frac{4}{4+1} = \frac{4}{5}$; partition point (x,y) =
 $(x_1 + k(x_2 - x_1), y_1 + k(y_2 - y_1)) = (11 + \frac{4}{5}(2 - (-3)), 8 + \frac{4}{5}(7 - (-8))) = (11 + \frac{4}{5}(5), 8 + \frac{4}{5}(15)) = (13 + 4, 8 + 12) = (17, 20)$

23) C(2,0)

WORK SHOWN: A(11,-6) = (x₁,y₁), B(-10,8) = (x₂,y₂); ratio = $\frac{3}{4} = \frac{a}{b}$, $k = \frac{a}{a+b} = \frac{3}{3+4} = \frac{3}{7}$; partition point (x,y) =
 $(x_1 + k(x_2 - x_1), y_1 + k(y_2 - y_1)) = (11 + \frac{3}{7}(-10 - (11)), -6 + \frac{3}{7}(8 - (-6))) = (11 + \frac{3}{7}(-21), -6 + \frac{3}{7}(14)) = (11 + 9, -6 + 6) = (20, 0)$

24) 35.5 units²



WORK SHOWN:
 A_{rectangle} = 10(7) = 70; A_{triangle} = $\frac{1}{2}(4)(3) = 6$, A_I = $\frac{1}{2}(5)(7) = \frac{35}{2}$, A_{II} = $\frac{1}{2}(2)(8) = 8$, A_{IV} = $\frac{1}{2}(3)(2) = 3$,
 A_{ABCD} = A_{rectangle} - (A_I + A_{II} + A_{III} + A_{IV}) = 70 - (6 + $\frac{35}{2}$ + 8 + 3) = 35.5

20) EF = $\sqrt{(2-1)^2 + (4-0)^2} = \sqrt{5}$
 DF = $\sqrt{(2-0)^2 + (4-3)^2} = \sqrt{5}$
 EF ≅ DF because they have the same length
 EF is a right angle b/c ⊥ lines are perpendicular slopes

21) Point D(1,3)
 slope AB = $\frac{8-0}{5-0} = \frac{8}{5}$
 slope BC = $\frac{5-2}{6-5} = \frac{3}{1} = 3$
 slope CD = $\frac{5-3}{6-1} = \frac{2}{5}$
 slope AD = $\frac{3-0}{1-0} = \frac{3}{1} = 3$
 A triangle with a right angle and 2 ≅ sides is an isosceles right Δ.

28) TE = $\sqrt{(5-(-2))^2 + (-4-5)^2} = \sqrt{58}$
 EA = $\sqrt{(2-(-5))^2 + (-1-(-4))^2} = \sqrt{58}$
 AM = $\sqrt{(5-2)^2 + (6-(-1))^2} = \sqrt{58}$
 TM = $\sqrt{(5-(-2))^2 + (6-3)^2} = \sqrt{58}$
 TE ≅ EA ≅ AM ≅ TM because they are the same length. TEAM is a rhombus because it has 4 ≅ sides

TE and EA are not ⊥ because their slopes are not opposite reciprocals
 TEAM is not a square because it does not have a right angle