Name: _____

CC Geometry Honors

Coordinate Geometry Quiz Review

1) To prove that a quadralateral is a parrallelogram, show that
   A) one pair of consecutive angles are supplementary
   B) the length of consecutive sides are not equal
   C) the length of the diagonals are not equal
   D) pairs of opposite sides have the same length

2) If the product of the slopes of two line segments equals -1, then the segments
   A) are parallel
   B) are perpendicular
   C) form a 45° angle at the point of intersection
   D) are collinear

3) What is an equation of the line perpendicular to the line $x - 5 = 0$ and passing through the point (-6,-5)?
   A) $x = -6$ C) $x = -5$
   B) $y = -6$ D) $y = -5$

4) What is an equation of the line that is parallel to x-axis and that passes through the point (1,5)?
   A) $y = 5$ C) $x = 1$
   B) $y = 1$ D) $x = 5$

5) An equation of the line parallel to the line $2y - x = 8$ and passing through the point (5,7) is
   A) $y + 5 = 2(x + 7)$
   B) $y - 5 = \frac{1}{2}(x - 7)$
   C) $y - 7 = \frac{1}{2}(x - 5)$
   D) $y - 7 = 2(x - 5)$

6) What is the slope of the line containing points A(4,-1) and B(0,2)?
   A) $-\frac{4}{3}$ C) $\frac{4}{3}$
   B) $\frac{3}{4}$ D) $-\frac{3}{4}$

7) What is the y-intercept of the line whose equation is $3y = 6x + 12$?
   A) 1   C) 3
   B) 2   D) 4

8) What is the slope of a line that is perpendicular to the line whose equation is $y = -\frac{4}{5}x - 3$?
   A) $\frac{5}{4}$ C) $-\frac{4}{5}$
   B) $\frac{4}{5}$ D) $-\frac{5}{4}$

9) Given points A(0,0), B(3,2), and C(-2,3), which statement is true?

A) $\overline{BC}$ is perpendicular to $\overline{CA}$.
B) $\overline{AB}$ is perpendicular to $\overline{AC}$.
C) $\overline{AB}$ is parallel to $\overline{AC}$.
D) AB is greater than BC.

10) What is the equation of a line parallel to the line whose equation is $3y = 2x + 3$?

A) $y = \dfrac{2}{3}x + 3$
C) $3y = -2x + 1$

B) $y = \dfrac{3}{2}x - 3$
D) $2y = 3x + 3$

11) What is the slope of a line that is perpendicular to the line whose equation is $7x - 3y = 10$?

A) $\dfrac{3}{7}$
C) $-\dfrac{3}{7}$

B) $\dfrac{7}{5}$
D) $-\dfrac{7}{3}$

12) 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) (-3,0)
B) (1,-2)
D) (-1,-1)

13) Which statement describes the graph of $x = 4$?

A) It has a slope of 4.
B) It is parallel to the x-axis.
C) It passes through the point (0,4).
D) It is parallel to the y-axis.

14) A point Z is placed on segment PQ such that segment PZ is $\dfrac{1}{6}$ the length of segment ZQ.
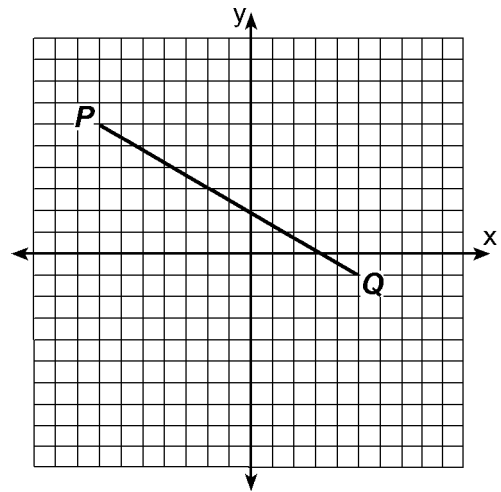
What are the coordinates of point Z?

A) (-5.29,4.14)
C) (-5,4)
B) (-0.33,0.67)
D) (3.29,-0.14)

15) Segment AB is parallel to segment CD. If the slope of segment AB = $-\dfrac{3}{7}$ and the slope of segment CD = $-\dfrac{x}{14}$, find the value of x.

16) Two points whose coordinates are (4,17) and (2,a) determine a line whose slope is 6. Find the value of a.

17) Write an equation of the line perpendicular to the line $5x - 2y = -3$ and passing through the point (2,-1). [*Show all work.*]

18) Write an equation of the line parallel to the y-axis that passes through (4,6).

19) Write an equation of the line parallel to the line $5y + 6x = 11$ and passing through the point (-3, 7).

20) In the accompanying diagram, parallelogram MATH is shown with a vertex M located at (5,2). The equation of $\overline{AT}$ is given. Write an equation of the line passing through points M and H.
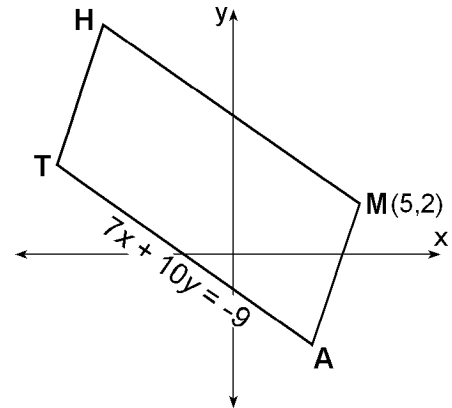
21) Write an equation of the line that passes through the points (-1,-2) and (5,1).

22) Write an equation of the line that passes through the points (5,2) and (2,8).

23) Point *D* at (12,38) and point *F* at (17,56) form a line segment. Calculate the coordinates of a point that partitions the segment into a 1:5 ratio, with the shorter part containing point *D*. [*Show all work.*] [*Round to the nearest hundredth where appropriate.*]

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.*]

25) The points A(-1,5), B(5,1), C(6,-2), and D(0,2) are the vertices of a quadrilateral. Prove that ABCD is a parallelogram.

1) D   2) B   3) D   4) A   5) C

6) D   7) D   8) A   9) B   10) A

11) C   12) B   13) D   14) A

15) 6

16) 5

17) SAMPLE ANSWER: $y + 1 = -\dfrac{2}{5}(x - 2)$

WORK SHOWN: $5x - 2y = -3$, $2y = 5x + 3$, $y = \dfrac{5}{2}x + \dfrac{3}{2}$; $m = \dfrac{5}{2}$, $-\dfrac{1}{m} = -\dfrac{2}{5}$, $m_{\perp} = -\dfrac{2}{5}$; $y - y_1 = m(x - x_1)$, $y + 1 = -\dfrac{2}{5}(x - 2)$

18) $x = 4$

19) SAMPLE ANSWER: $y - 7 = -\dfrac{6}{5}(x + 3)$

20) SAMPLE ANSWER: $y - 2 = -\dfrac{7}{10}(x - 5)$

21) $y = \dfrac{1}{2}x - \dfrac{3}{2}$

22) $y = -2x + 12$

23) (12.83,41)

WORK SHOWN: $D(12,38) = (x_1,y_1)$, $F(17,56) = (x_2,y_2)$; ratio $= \dfrac{1}{5} = \dfrac{a}{b}$, $k = \dfrac{a}{a+b} = \dfrac{1}{1+5} = \dfrac{1}{6}$; partition point $(x,y) =$
$(x_1 + k(x_2 - x_1), y_1 + k(y_2 - y_1)) = (12 + \dfrac{1}{6}(17 - 12), 38 + \dfrac{1}{6}(56 - 38)) = (12 + \dfrac{1}{6}(5), 38 + \dfrac{1}{6}(18)) = (12 + \dfrac{5}{6}, 38 + \dfrac{18}{6}) = (12.83, 38 + 3) =$
$(12.83, 41)$

24) $C(2,0)$

WORK SHOWN: $A(11,-6) = (x_1,y_1)$, $B(-10,8) = (x_2,y_2)$; ratio $= \dfrac{3}{4} = \dfrac{a}{b}$, $k = \dfrac{a}{a+b} = \dfrac{3}{3+4} = \dfrac{3}{7}$; partition point $(x,y) =$
$(x_1 + k(x_2 - x_1), y_1 + k(y_2 - y_1)) = (11 + \dfrac{3}{7}(-10 - 11), -6 + \dfrac{3}{7}(8 - (-6))) = (11 + \dfrac{3}{7}(-21), -6 + \dfrac{3}{7}(14)) = (11 + 9, -6 + 6) = (2,0)$

25) Answer is a proof.