Name:_____   Date:_____

Math 9 Enriched: Section3.2 Slopes and Lengths of Line Segments.

1. Find the length of each line segment given the coordinates of the endpoint

| a) A(3,-5) and B(-4,-9)	b) C(-4,3) and D(7,3)	c) E(12.5, 5) and F(-1.5,5)
d) G(3.5, 5) and H(7.5,8.5)	e) J(-3,0) and K(8,-9)	f) L(-3.83,-11.2) and M(-4.7,-9.4)

2. Find the slope of each line segment given the coordinates of two points on the line:

a) A(3,-5) and B(-4,-9)	b) C(3,-5) and D(-4,-9)	c) A(1,6) and B(5,-4)
d) M(2,-7) and N(-7,2)	e) J(3,-5) and K(-4,-5)	f) W(6,-5) and V(6,-9)

3. Given the following coordinates show whether if they are collinear

a) $C(2,5), D(5,8), E(-5,-2)$	b) $G(-4,8), E(-2,4), F(1,2)$	c) $Y(12,-20), E(5,-11), S(-2,-2.5)$

4. Graph the following lines on the graph:
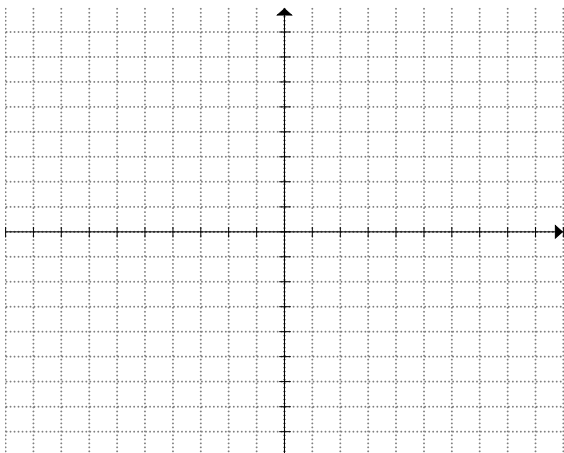
a) (3,5) & slope = -2/3

b) (-2,-1) & slope = 3/4

c) (0,2) & slope is undefined

5. Line "A" has a slope of zero and crosses the point (-5,12). What is the "X" and "Y" intercept of the line?

6. If points 'A", "B" and "C" are on the line: $y = kx + w$, can the slope of segment AB be larger than the slope of segment BC? Justify your answer:

7. Find the value of 'k' with the given endpoints and the slope:

a) P(3,9) , Q(-1,3k); slope =-6   b) W(-2,-2), X(k,2); slope = $\frac{3}{4}$ c) Y(3,4), Z(9,k); slope= -4/3

8. Given that the following line segments are equal, what is the value of "x"?
a) P(-6,-3) , Q(-6,5);   R(3,5) S(x,-3)   b) A(-2x,-1), B(-4,-7), & C(8,1) D(x,7)

9. Find the coordinates of the points on the y-axis which is equidistant from the points (5,0) and (1,6)

10. The vertices of a triangle are A(-1,2) , B(1,-5), and C(5,-2). Classify the triangle as "scalene", "isosceles" or "equilateral". What is the area of the triangle?
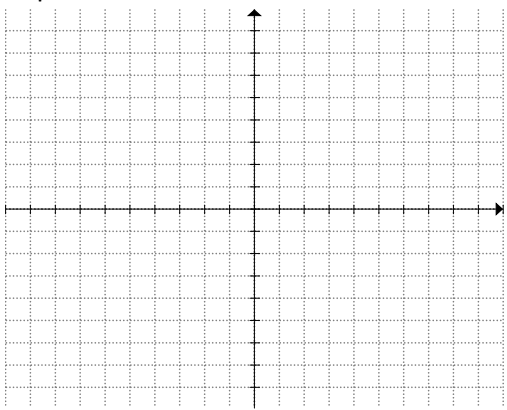

11. A circle is tangent to the y-axis at (0,2) and the larger of its x-intercept is 8. Determine the radius of the circle.

12. Find the coordinates of the points on the x-axis which are 5 units from (5,4).

13. Two line segments, with a common endpoint (0,4) have slopes 2 and -1/2. If the other endpoints are on the x-axis, find their coordinates.

14. A line segment has length 10, and its endpoints are on the coordinate axes. If the slope of the line segment is -3/4, find the possible coordinates of the endpoints.

15. Can a triangle be drawn such that all the sides have a positive slope? Explain and justify your answer.

16. Triangle ABC has vertices A(-4,1), B(2,-1), and C(1,k). What is the number of possible values for "k" such that the triangle is isosceles?

17. Given the diagram, what is the slope of OA?
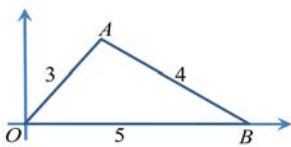
18. If $AB = BC = CD$, then what is the ratio of the slope of OB to the slope of OC?
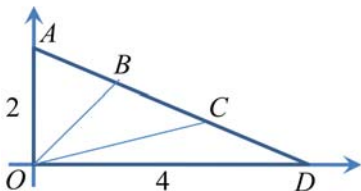
19. If the sum of the intercepts of a line is "N", it will be called an N-line. What is the sum of the y-intercepts of the two "3-lines" which pass through the point (-2,-4)?

(a) −3   (b) −1   (c) 1   (d) 3   (e) 6

20. Given that the following points are collinear A(5,6) B(-4,-3) and $C\left(k,k^2-1\right)$, find all the possible coordinates for C.

21. Each of the points P(4,1), Q(7,-8), and R(10,1) is on the circumference of circle C. Determine the length of the radius of circle C.

22. The point "B" is between the points A(2,3) and C(5,-7) and collinear with "A" and "C". If $\overline{AB}:\overline{BC}$ is 3:7, the sum of the coordinates of point "B

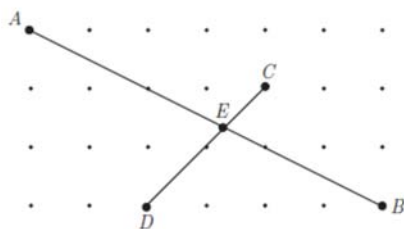(a) $\dfrac{3}{2}$ (b) $\dfrac{29}{10}$ (c) $\dfrac{3}{10}$ (d) $\dfrac{1}{10}$ (e) 2

23. The coordinates of points "A", "B", and "C" are (7,4), (3,1), and (0,k), respectively. The minimum value of $\overline{AB}+\overline{BC}$ is obtained when "k" equals:

(a) 1 (b) 1.7 (c) 1.9 (d) 2.5 (e) 4

24. In the diagram, A(0,a) lies on the y-axis above "D". If the triangles AOB and BCD have the same area, determine the value of "a". Explain how you got your answer.
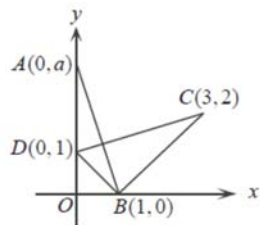
25. The diagram shows 28 lattice points, each one unit from its nearest neighbours. Segment AB meets segment CD at "E". Find the length of segment AE.

(A) $4\sqrt{5}/3$ (B) $5\sqrt{5}/3$ (C) $12\sqrt{5}/7$ (D) $2\sqrt{5}$ (E) $5\sqrt{65}/9$