

MU ALPHA THETA - MAINE '95 LINEAR COORDINATE GEOMETRY - TOPIC TEST

1. Find the slope of the line passing through points A and B if A is located at (40, 70) and B is at (90, -50).

- a. $\frac{-12}{5}$ b. $\frac{-5}{12}$ c. $\frac{5}{12}$ d. $\frac{12}{5}$ e. not given

2. Find the y-intercept of $2x + 6y - 5 = 0$.

- a. $\frac{-5}{6}$ b. $\frac{-5}{2}$ c. $\frac{5}{6}$ d. $\frac{5}{2}$ e. not given

3. The length of \overline{MS} is 16 cm. If E is the midpoint of \overline{MS} and L is the midpoint of \overline{ES} , find the numerical length of \overline{ML} .

- a. 4 cm b. 8 cm c. 12 cm d. 16 cm e. not given

4. Find the distance between the midpoint of line segment AB and point B, given A(5,7) and B(8,3).

- a. 2.5 b. 5 c. 10 d. 13 e. not given

5. Find k so that $3x - 4y + 2 = 0$ is parallel to $6x + ky - 3 = 0$

- a. -4.5 b. -8 c. 4.5 d. 8 e. not given

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6. A line has a slope of -4 . One of the points on the line is $(-1, x - 2)$. Another point on the line is $(-2, 2x + 1)$. Solve for x .

- a. -15 b. -7 c. 1 d. 5 e. not given

7. Which one of the following is the equation of the line passing through the points $(6, 2)$ and $(-3, 5)$.

- a. $x + 3y = 12$ b. $3x + y = -4$ c. $x - 3y = -24$ d. $3x - y = -14$ e. not given

8. Which of the following lines is perpendicular to $5x - 4y + 2 = 0$?

- a. $y = \frac{3}{4}x - 3$ b. $y = \frac{-5}{4}x - 1$ c. $y = \frac{-4}{5}x - 7$ d. $y = \frac{4}{5}x$ e. not given

9. The slope of a line is $\frac{4}{9}$ of its y -intercept. If the y -intercept is -2 , write the equation of the line.

- a. $y = \frac{4}{9}x - 2$ b. $8x + 9y = -18$ c. $8x + 9y = -2$ d. $4x - 9y = 8$ e. not given

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10. The vertices of a triangle are $(2, 0)$, $(-2, -1)$, and $(3, -4)$. The triangle is
- a. right, scalene b. isosceles, right c. equilateral d. scalene but not right.
e. not given
11. Find a if the points $(11, 7)$, $(8, 3)$, and $(2, a)$ are collinear.
- a. -5 b. -3 c. -1 d. 3 e. not given
12. Find the sum of the values of A and B so that the graph of the equation $Ax + By = 9$ will contain the points $(6, 3)$ and $(11, 7)$.
- a. -1 b. 0 c. 1 d. 9 e. not given
13. Find the slope of the altitude to BC in the triangle with vertices $A(-2, 3)$, $B(6, -5)$, and $C(8, 5)$.
- a. 5 b. $\frac{1}{5}$ c. $-\frac{1}{5}$ d. -5 e. not given

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14. Find the equation of the line that passes through the intersection of $3x - 5y = 15$ and $4x - 7y = 21$ and contains the point $(2, 5)$.

- a. $4x - y - 3 = 0$ b. $4x - y + 3 = 0$ c. $x + 4y - 3 = 0$ d. $x - 4y + 3 = 0$
e. not given

15. Given $\triangle ABC$ with vertices $A(2, 6)$, $B(3, -5)$ and $C(-1, 7)$, find the length of the median from point A.

- a. $\sqrt{58}$ b. 7 c. $\sqrt{26}$ d. 6 e. not given

16. If $(3, -5)$ are the coordinates of one endpoint of a diameter of a circle with center at $(6, 2)$, the coordinates of the other endpoint of this diameter are

- a. $(9, -3)$ b. $(4.5, -1.5)$ c. $(3, 7)$ d. $(9, 7)$ e. not given

17. Find the value of c if points (x, y) and (y, cy) are located in the second quadrant and a line segment starting at the origin passes both points.

- a. 1 b. xy c. $\frac{x}{y}$ d. $\frac{y}{x}$ e. not given

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18. Find the equation of the perpendicular bisector of the line segment joining the points D(-1, -3) and E(3, 5).

- a. $x + 2y + 1 = 0$ b. $x - 2y - 1 = 0$ c. $x - 2y - 1 = 0$ d. $x + 2y - 1 = 0$
e. not given

19. The line $2x - 5y = 4(c - 2)$ passes through (-2, 4). Find the x-intercept of the line.

- a. -24 b. -12 c. -4 d. 4 e. not given

20. Triangle LHS is isosceles. L is point (-2, -3). H is point (-2, 7). the abscissa of S is 4. What is the sum of all the possible values for the ordinate of S?

- a. 10 b. 7 c. -4 d. -10 e. not given

21. The line $y = \frac{1}{2}x - 3$ is the perpendicular bisector of a line segment which has one endpoint of (-3, 5). What is the abscissa of the other endpoint?

- a. $\frac{4}{5}$ b. $\sqrt{5}$ c. $\frac{23}{5}$ d. $\frac{-13}{5}$ e. not given

22. Find the coordinates of the point equidistant from the points (3, 11), (9,5), and (7, -1).

- a. (6, 8) b. (8, 2) c. (2, 4) d. (-5, -3) e. not given

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23. The total number of points that are equidistant from both the x and y coordinate axes and three units out from the origin is

- a. 0 b. 1 c. 2 d. 4 e. not given

24. Find k so that the line $2x + ky - 7 = 0$ is perpendicular to the x-axis.

- a. -2 b. -1 c. 1 d. 2 e. not given

25. Write an equation of the line that is tangent to the circle $x^2 + y^2 = 25$ at the point $(-3, 4)$.

- a. $3x - 4y = 0$ b. $3x - 4y + 7 = 0$ c. $3x + 4y + 25 = 0$ d. $3x - 4y + 25 = 0$
e. not given

26. What are the coordinates of the centroid of the triangle with vertices $(6, 1)$, $(5, 4)$, and $(1, 7)$?

- a. $(6, 6)$ b. $(4, 4)$ c. $(4, 3)$ d. $(3, 4)$ e. not given

27. The distance from the point $(5, -2)$ to the line $5x - 12y + 16 = 0$

- a. 13 b. 5 c. $\sqrt{13}$ d. 3 e. not given

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28. Find the distance between the graphs of $3x + 4y = 12$ and $3x + 4y = 24$.

- a. 2.4 b. 3 c. 4.8 d. 5 e. not given

29. $(-6, 3)$, $(0, -2)$, $(5, -8)$, and $(-1, -3)$ are coordinates of quadrilateral ABCD. Most specifically quadrilateral ABCD is a

- a. square b. rectangle c. rhombus d. parallelogram e. not given

30. The graphs of the equations below enclose two triangular regions. Find the sum of their areas.

$$x = 5, \quad x = -8, \quad y = 0, \quad y = |x|$$

- a. 43.5 b. 44 c. 44.5 d. 45 e. not given