

Only to be used for arranged hours

Math 31

Activity # 6

"Linear Equations"

Your Name: _____

1) Given the equation, $8x - 6y = 24$, explain in words how to find the x -intercept and the y -intercept.

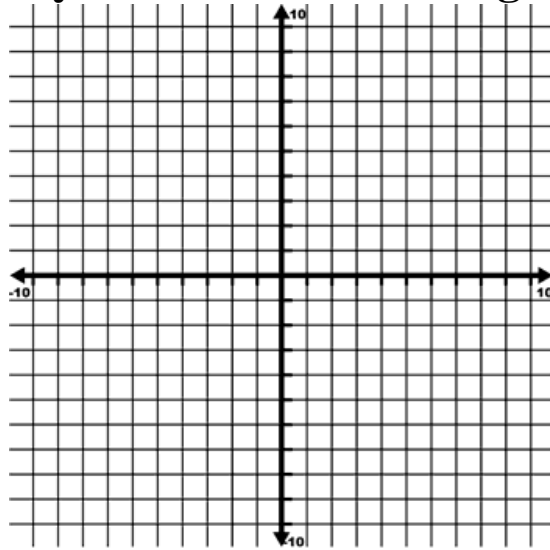
Find the intercepts for the equation above.

2) What are the ordered-pair coordinates of the point where the line $8x - 6y = 24$ intersects the x -axis?

3) For $8x - 6y = 24$, what are the ordered-pair coordinates of the y -intercept?

4) Graph the equation, $8x - 6y = 24$ by plotting the intercepts and label this Line 1.

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- 5) Find the slope of Line 1 using the vertical change and horizontal change. Start at the x -intercept and end at the y -intercept.

- 6) For Line 1, use the coordinates of the x - and y -intercepts to find the slope using the slope formula.

- 7) Find the slope of $8x - 6y = 24$ by rewriting the equation in Slope-Intercept Form.

- 8) What do you discover about your answers to problems 5, 6, and 7?

- 9) Find the equation of Line 1, in Point-Slope Form.

- 10) Graph a line with slope of zero with a y -intercept of $(0, 6)$. Label this Line 2.

- 11) Find the equation of Line 2.

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12) Graph a line whose slope is undefined, which intersects the x -axis six units to the left of the origin. Label this Line 3. Label the intersection point of Line 2 and Line 3 as point P. What are the coordinates of point P?

13) Find the equation of Line 3.

14) Draw a line passing through point P and the origin. Label this Line 4 and find the slope of this line. Compare answers with teammates.

15) Draw a line which contains the point $(0, -2)$ which has a slope of $\frac{4}{3}$. Label this Line 5.

16) How does the slope of Line 1 compare to the slope of Line 5? Are Lines 1 and 5 *parallel*? Explain why or why not. _____

17) Find the equation of Line 5, in slope in Slope-Intercept Form.

18) Since Line 1 has a slope of $\frac{4}{3}$, what is the slope of any line which is perpendicular to Line 1?

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19) Draw a line perpendicular to Line 1 which passes through the x -intercept of Line 1, and label this Line 6.

20) State the ordered pair coordinates of a second point on Line 6. Compare your answer with teammates.

21) Find the equation of Line 6 in slope-intercept form. Compare your answer with teammates.

22) Using exercise #21, what is the ordered pair coordinates of the y -intercept?

23) By reading your graph, what are the coordinates of the point where Line 6 intersects the y -axis?

24) What is the name of the geometric shape that is formed by Lines 3, 4, and the x -axis?

25) What is the name of the geometric shape that is bounded by Lines 1, 4, 5 and 6 ?

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Debriefing

26) In your own words, explain three important concepts that you learned in this Activity.
