

REVIEW Unit 3 Test

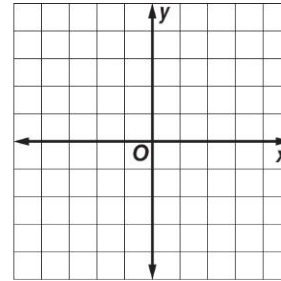
Linear Functions & Linear Inequalities

1. The equation $300x + 50y = 600$ represents the number of premium tickets x and the number of discount tickets y for a horse race that can be bought with \$600. If no premium tickets are purchased, how many discount tickets can be purchased with \$600?
2. If $(2, b)$ is a solution to the equation $-3a = b + 14$, what is b ?

3. Find the x -intercept of $x - 5y = 8$.

4. Find the zero of the function $f(x) = 2x - 4$ by graphing.

5. Find the zero of $f(x) = -3x - 36$.



For Questions 6–8, find the slope of the line passing through each pair of points. If the slope is undefined, write undefined.

6. $(5, -2)$ and $(-3, 4)$

7. $(-4, 6)$ and $(-7, 3)$

8. $(-1, -3)$ and $(-6, -3)$

9. If an ostrich can run 15 kilometers in 15 minutes, how many kilometers can it run in an hour?

10. Five years ago there were approximately 35,000 people living in Lancaster. Now the population is 38,452. Find the rate of change in the population.

For Questions 11 and 12, determine whether each equation is a linear equation. If so, write the equation in standard form.

11. $xy = 15$

12. $-2x + 5y + 6 = 2$

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For questions 13 – 15 Suppose y varies directly as x . Write a direct variation equation that relates x and y .

13. If $y = 15$ when $x = 2$, find y when $x = 8$

14. If $y = -6$ when $x = 9$ find x when $y = -3$.

15. If $y = 20$ when $x = \frac{1}{4}$, find x when $y = 75$

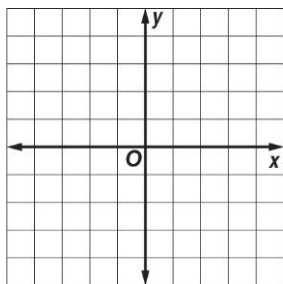
For questions 15 – 17, make a table of values, graph and tell the zeros of the functions.

16. Graph the equation $4x - 2y = 8$.

x	y

Zero: _____

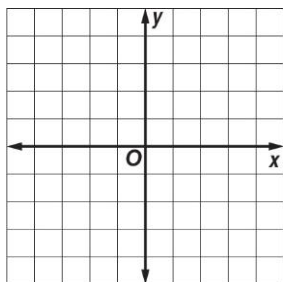
17. Graph $y = \frac{2}{3}x$



x	y

Zero: _____

18. Find the zero of the function $f(x) = -\frac{1}{2}x + \frac{3}{2}$ by graphing.



x	y

Zero: _____

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For Questions 19 and 20, use the table below that shows the value of a vending machine over the first five years of use.

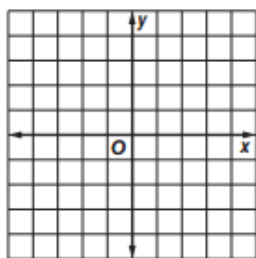
Number of Years	0	1	2	3	4	5
Value (dollars)	2000	1810	1620	1430	1240	1050

19. Write an equation in function notation for the relationship between years of use t and value $v(t)$.

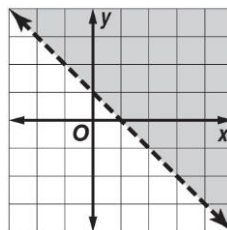
20. When will the value of the vending machine reach 0?

Inequalities.

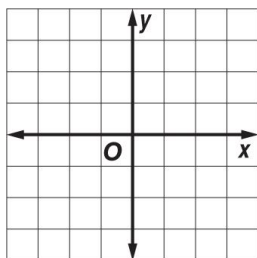
21. Graph $-4x - y \geq 1$



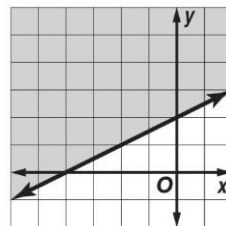
23. Write an inequality to represent the graph.



22. Graph $y > \frac{1}{2}x - 2$.



24. Write an inequality to represent the graph.



25. Write an inequality to represent the table of values.

X	Y
-4	-14
0	2
4	10
8	22