

UNIT REVIEW - LINEAR FUNCTIONS

Alg 2 BE

Find the slope in each situation:

1. Line passes through (4, 7) and (6, 13). 2. Line passes through (5, -3) and (-4, 3).

3.

Number of donuts	6	12	18
Cost	3.00	6.00	9.00

4. Line $y = 3$ 5. Line $x = -5$

6. You buy deli turkey at a price of \$6.49 per pound.

Sketch a line that satisfy the following conditions:

7. Positive slope 8. Negative slope 9. Slope=0 10. slope undefined

Graph the line:

11. $x = 4$ 12. $y = -3$ 13. $y = 4x - 3$ 14. $y = -\frac{2}{5}x + 1$
 15. $y = \frac{3}{5}x$ 16. $4x + 2y = 6$ 17. $y - 2 = \frac{1}{2}(x + 3)$ 18. $y + 1 = -\frac{3}{4}(x - 2)$

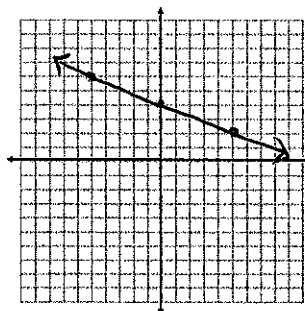
Write the equation of the line that satisfies the given conditions:

19. Line with a slope of zero through the point (5, 6).
 20. Line with an undefined slope through the point (2, 7).
 21. slope = 5 and y-intercept is 7
 22. slope = 3, passes through $(0, -\frac{1}{2})$
 23. In *point-slope form*: slope = -2, passes through (-4, 6)
 24. In *slope-intercept form*: slope = -2, passes through (-4, 6)
 25. Passes through the points (1, 9) and (4, 6).

26.

X	Y
-1	4
0	6
1	8

27.



Linear Applications:

28. A moving company charges a flat rate of \$100 and then \$3 per box moved.
- What is the slope and what does it represent in this problem?
 - What is the y-intercept and what does it represent in this problem?
 - Write an equation that models this situation.
 - How much money will you spend if you have the company move 25 boxes?

29. I need to order T-shirts for the gymnastics team. The company charges \$8 to set up the screen print and then \$11.50 for each shirt. If the team's order was \$169 in total, how many T-shirts did I order?

30. Sam works as a teaching assistant (TA) at her university. Each week she receives a batch of papers that need graded. The number of papers that she has left to grade at the end of each day can be estimated with the equation $P = 305 - 40d$, where P is the number of papers left and d is the number of days she has worked that week.

- What is the meaning of the value of 305 in this equation?
- What is the meaning of the value of 40 in this equation?

31. A company uses the formula $P = 50n - 300$ to calculate their monthly profit where P is the profit and n is the number of games sold. How many games does the company need to sell to make a profit of \$400 this month?

32. One third of a number is 15 less than five sixths of the number. Find the number.

33. Find three consecutive integers such that the sum of the largest and 5 times the smallest is -244.

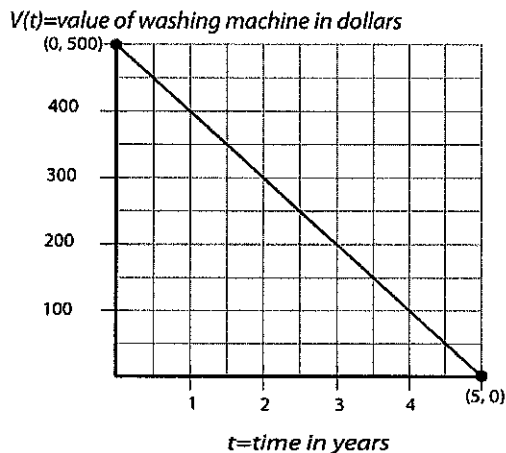
34. One company, Washers Plus, shows the value of their machines in a graph and another company, Clean Cycle, uses a table.

A. Which company's machine is more valuable when it is first purchased?

B. Describe how the rates of depreciation of each washers compare. (Compare the two slopes).

Years old	Value of the machine
0	600
1	540
2	480
3	420
6	240
10	0

company's



GOOD GRAPH of $V(t) = -100t + 500$

Parallel and Perpendicular Lines

35. Parallel lines have slopes that are _____ and perpendicular lines have slopes that are _____.

36. Write the equation of the line through $(-2, 5)$ and perpendicular to $y = -\frac{1}{3}x + 4$

- A. In point-slope form
- B. In slope-intercept form
- C. In standard form

37. Write the equation of the line in slope-intercept form through $(0, 6)$ and parallel to $3x + 5y = 7$.

38. Graph the line perpendicular to $y = 5$ through $(-1, -2)$.

39. Write the equation of the line parallel to $y = -1$ through $(0, 3)$.

Linear Systems:

40. $p = 1.20 + 0.35x$
 $c = 2.80 + 0.15x$

In the equations, p represents the price per pound, in dollars of peanuts and cashews, respectively, x weeks after January 1. What was the price per pound of peanuts when it was equal to the price per pound of cashews?

41. A school sold 450 tickets for the spring fling. Adult tickets cost \$8 and student tickets cost \$4, and the total revenue was \$2,200. Let a represent the number of adult tickets sold and s represent the number of student tickets. Write a system of equations that could be used to find out how many of each type of ticket was sold.

42. If (x, y) is the solution to the the system $\begin{cases} 3x - 4y = -19 \\ x + 2y = 17 \end{cases}$, what is the value of $2x + y$?

43. Rose's Restaurant ordered 200 flowers for Mother's Day. They ordered carnations at \$1.50 each, roses at \$5.75 each, and daisies at \$2.60 each. They ordered mostly carnations, and 20 fewer roses than daisies. The total order came to \$589.50. How many of each type of flower was ordered?

44. The Dearborn fire truck has two hoses. The length of hose 1 is 20 feet less than 4 times the length of hose 2. The combined length of the two hoses is 380 ft. What is the length of the longer hose?

45. A triangular sail has two sides that are the same length. The third side is 9 ft shorter than either of the two equal sides. The perimeter of the sail is 63 ft. How long is the shortest side?