

To receive credit, show all work and answers on separate paper. The test will cover the entire six weeks (chapters 1 and 2). A calculator will only be allowed on about one-third of the test, so prepare appropriately. Test reviews are due on test day - NO LATE REVIEWS ACCEPTED.

NON-CALCULATOR SECTION (#1 - 38)

Solve the equation. Check for extraneous solutions. (example 3, p. 34)

1. $3|5 - 2x| = 3x + 4$ 2. $|2x - 3| = 20 + 5x$

To which sets of numbers does the number belong? (see pg. 5)

3. $\sqrt{65}$ 4. -6 5. $\frac{4}{7}$

Name the property of real numbers illustrated by the equation. (example 5, p. 7)

6. $-2(x + 12) = -2x - 24$ 7. $6 + (\sqrt{9} + 11) = (6 + \sqrt{9}) + 11$
8. $\pi \cdot 13 = 13 \cdot \pi$

Solve the compound inequality. Graph the solution set. (example 4, p. 28)

9. $11 \leq 3y + 2 < 20$ 10. $4x - 5 < -17$ or $5x + 6 > 31$
11. For $f(x) = 5x + 1$, find $f(-4)$. (example 6, p. 60)
12. Suppose $f(x) = -6x - 3$ and $g(x) = 3x + 3$. Find the values of:
a) $\frac{f(4)}{g(2)}$ b) $\frac{g(-3)}{f(-1)}$
13. Graph the equation $y = \frac{3}{4}x - 1$. (example 1, p. 64)
14. Graph the equation $4x + 2y = 20$. 15. Graph the equation $2x + 3y = 12$.

Find the slope of the line through the pair of points. (example 3, p. 66)

16. $(3, 12)$ and $(12, -1)$ 17. $(\frac{2}{3}, \frac{1}{3})$ and $(0, \frac{1}{2})$

Find the point-slope form of the equation of the line passing through the given points: (example 4, p. 67)

18. $(-6, -4)$ and $(2, -5)$. 19. $(-1, -8)$ and $(5, -1)$.

Write in standard form an equation of the line passing through the given point with the given slope.
(example 4, p. 67)

20. slope = -8 ; $(-2, -2)$ 21. slope = $\frac{8}{7}$; $(5, -3)$

Find the slope of the line. (example 6, p. 68)

22. $3x + 5y = -15$ 23. $\frac{3}{4}x + \frac{1}{3}y = 5$

Determine whether y varies directly with x . If so, find the constant of variation k . (example 2, p. 75)

24. $-5y = -7x$ 25. $y = -3x - 22$

26. A balloon takes off from a location that is 121 ft above sea level. It rises 61 ft/min. Write an equation to model the balloon's elevation h as a function of time t . (example 1, p.1)
27. Graph the absolute value equation: $y = |x + 3| + 1$. (example 1, p.90)
28. What is the vertex of $y = |-3x + 4| + 2$? (example 1, p.90)
29. What is the vertex of $y = -|-3x + 2| + 4$?
30. Write the equation that is the translation of $y = |x|$ right 11 units and down 7 units. (example 1, p.96)
31. Write the equation that is the translation of $y = |x|$ right 2 units and up 4 units.
32. Graph: $4x + y < 4$ (example 1, p.104)
33. Graph: $x - 3y \geq 9$
34. A. A rectangle is 7 times long as it is wide. The perimeter is 175 cm. Find the dimensions of the rectangle. Round to the nearest tenth, if necessary.
- B. An electronics store makes a profit of \$85 for every IPOD player sold and \$125 for every IPHONE sold. The manager's target is to make at least \$350 a day on sales of the IPOD players and IPHONEs. Write an inequality that represents the number of both kinds of DVD players that can be sold to reach or beat the sales target. Let p represent the number of IPOD players and r represent the number of IPHONEs.
- C. A jar of buttons contains 8 white buttons, 4 orange buttons, 12 blue buttons, and 13 pink buttons. Find $P(\text{pink or orange})$.
- Graph the absolute value inequality:**
35. Graph: $y = |x + 2| - 2$ (example 3, p.105)
36. Graph: $y = |x + 3| - 2$
37. Is the relation $\{(-2, 5), (-1, 5), (-1, 4), (-1, -3), (-2, 0)\}$ a function? Explain. (example 4, p.59)
38. Is the relation $\{(3, 5), (-4, 5), (-5, 0), (1, 1), (4, 0)\}$ a function? Explain.

CALCULATOR ALLOWED SECTION

Find an equation for the line in slope-intercept ($y = mx + b$) form. PLEASE DO NOT USE ANY DECIMALS IN YOUR ANSWER - FRACTIONS ONLY.

39. through $(1, -1)$ and perpendicular to $y = \frac{5}{2}x - 3$. (example 7, p. 69)
40. through $(-4, 6)$ and parallel to $y = -3x + 4$.
41. through $(2, -4)$ that is vertical. **AND** for a line that is horizontal.

Determine whether y varies directly with x . If so, find the constant of variation k and write the equation. (example 1, p. 74)

42.

x	y
6	24
18	72
54	216
162	648

43.

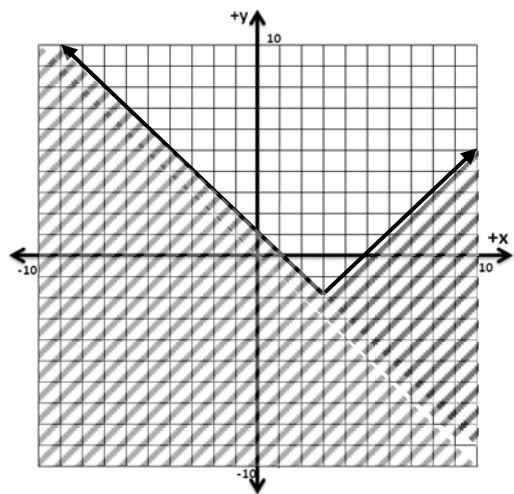
x	y
6	7.2
11	13.2
16	19.2
21	25.2

Find the value of y for a given value of x , if y varies directly with x . (example 4, p. 76)

44. If $y = 166$ when $x = 83$, what is y when $x = 23$?
45. If $y = 4.8$ when $x = 2.4$, what is y when $x = 2.05$?
46. The distance traveled at a constant speed is directly proportional to the time of travel. If Olivia traveled 112 miles in 3.5 hours, how many miles will Olivia travel in 8.9 hours at the same constant speed?
(example 2, p. 75)
47. A leaky valve on the water meter overcharges the residents for one gallon of water in every $3\frac{1}{2}$ months. The overcharged amount w varies directly with time t .
- Find the equation that models this direct variation.
 - How many months it will take for the residents to be overcharged for 10 gallons of water?
48. Graph the set of data. Is a linear model reasonable? If yes, draw a trend line and write its equation.

$\{(1, 5), (2, 6), (3, 9), (4, 9), (5, 8), (7, 11), (9, 11)\}$

49. Write an inequality for the graph:



50. Solve the given the equation for the variable g . When $s=8$, what is g ?

$$s = \frac{1}{2}gt^2 + 2$$

