

Cumulative Review

For use after Chapters 1–5

Evaluate the expression for the given values of the variable. (1.2)

- $(2s + t)^3$ when $s = -1$ and $t = -5$
- $a - \frac{1}{2}b^3$ when $a = \frac{1}{3}$ and $b = -\frac{2}{3}$
- $-10.9(k - 0.36)$ when $k = 0.45$
- $8 - (x^2) - (y^3)$ when $x = -3$ and $y = 6$

Write an equation or an inequality to model the situation. (1.5)

- The length l of a table is three times its width w .
- The time t it takes to go to work from home is less than one half the time s it takes to go to the mall.
- The height h of a triangle is equal to the quotient of two times the area a and its base b .

Find the sum or difference. (2.2–2.3)

- $|-3| - |2^2| - (2)$
- $-23.8 - 0.327 + 45.96$
- $|-3.677| + 4.279 - 5.698$
- $-\frac{7}{3} - |-\frac{5}{6}| + (\frac{2}{3})^2$

Solve the equation. (3.1–3.4)

- $-14x - 5 = 93$
- $-15a + 30 = -89$
- $-(x - 2.3) - 4(5.9 - x) = 80$
- $\frac{2}{9}(x - \frac{6}{7}) = (\frac{1}{63}x + \frac{40}{63})$

Find the x - and y -intercepts of the equation. (4.3)

- $y = 4x - 14$
- $\frac{8}{9}x + \frac{40}{27} = 10y$

Find the slope of the line passing through the given points. (4.4)

- $(0, -18), (-3.5, -18.99)$
- $(\frac{8}{3}, \frac{4}{7}), (\frac{50}{3}, \frac{6}{21})$

Write an equation of the line with the given slope and y -intercept. (5.1)

- $m = 3, b = -2$
- $m = -5, b = 4$
- $m = 7, b = 11$
- $m = \frac{1}{5}, b = -6$
- $m = 0, b = 8$
- $m = -6.5, b = 4.5$

Write an equation of the line that is parallel to the given line and passes through the given point. (5.2)

- $y = 4x + 6, (4, -2)$
- $y = -\frac{1}{4}x - 1, (4, 1)$
- $y = -3x + 9, (3, -2)$
- $y = \frac{4}{3}x - 6, (3, 1)$

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Write an equation in slope-intercept form of the line that passes through the given points. (5.3)

30. $(12, -3), (-8, 1)$

31. $(-12, -56), (-40, 0)$

32. $(\frac{1}{2}, -\frac{1}{2}), (\frac{1}{8}, \frac{5}{8})$

33. $(-3.75, 3), (3.23, -3.44)$

For Exercises 34–36: (5.4)

a) Make a scatter plot of the data.

b) State whether x and y have a positive correlation, negative correlation, or no correlation.

c) If possible, write an equation of a best fitting line for the scatter plot.

34.

x	y
0	-6
0.5	2
5	7
8	2

35.

x	y
$-1\frac{5}{6}$	2
0	$1\frac{1}{2}$
$\frac{1}{2}$	0
$2\frac{3}{4}$	-4

36.

x	y
1.2	-8
2.3	-6
4.1	-4
5.6	-3.1

Write an equation in point-slope form of the line that passes through the given points. (5.5)

37. $(2, 7), (-2, -7)$

38. $(-10, 8), (-20, -12)$

39. $(4, 1), (-2, -3)$

40. $(-10, 10), (-6, -6)$

Write the general form of the equation of the line passing through the given point that has the given slope. (5.6)

41. $(2, -5), m = -5$

42. $(0, 5), m = -\frac{1}{2}$

43. $(-2, 7.5), m = -6$

44. $(-4, 4), m = 4$

In Exercises 45–47, use the following information regarding the farm population (millions of persons) from 1945 to 1995. (5.7)

Year	1945	1955	1965	1975	1985	1995
Millions of Persons	24.3	19.0	12.3	8.8	2.0	0.04

45. What was the average farm population in 1975?

46. Make a scatter plot of the number of people living on farms in terms of the year x . Let $x = 0$ represent 1945.

47. Write a linear model for the farm population (millions of persons).