Review Problems for 8th Grade Algebra 1 Honors

Chapter 1, Section 1.1

Evaluate each expression

1. $24 \div [(4 \cdot 3) - 6]$ 2. $[(3 \cdot 3) + 12] \div 7$ 3. $\frac{28}{(4)(2) - 4}$

4. A swimming pool is 5m wide and long. A concrete walk that is 2m wide surrounds the pool. Draw and label a diagram of the pool and the walk. Decide how much it will cost for wooden fencing around the outside of the walk if the fencing sells for $13 per meter.

5. Write 6/5 as a decimal.

6. Write 3/8 as a percent.

7. Write 0.32 as a fraction.

8. Write 22% as a reduced fraction.

Chapter 1, Section 1.2

9. Evaluate $5y + 4(y - 3)$ when $y = 4$.

10. Evaluate $[9 - (x / 4)] + y$ when $x = 8$ and $y = 7$.

11. Use the formula Distance = Rate x Time to decide how long a car travels if it goes 162.5 miles at 65 mph.

12. Use the formula $F = \frac{9}{5}C + 32$ which relates Fahrenheit and Celsius temperature to determine the Celsius temperature on a day the thermometer reads 92° F.

Chapter 1, Section 1.3

13. Write "two cubed" in exponential form.

14. Write (2x)(2x)(2x) in exponential form.

15. Evaluate $a^2 - 3$ when $a = 3$.

16. Evaluate $3m^2+6n$ when $m = 2$ and $n = 3$.

17. Explain the standard order of operations.

Chapter 1, Section 1.4

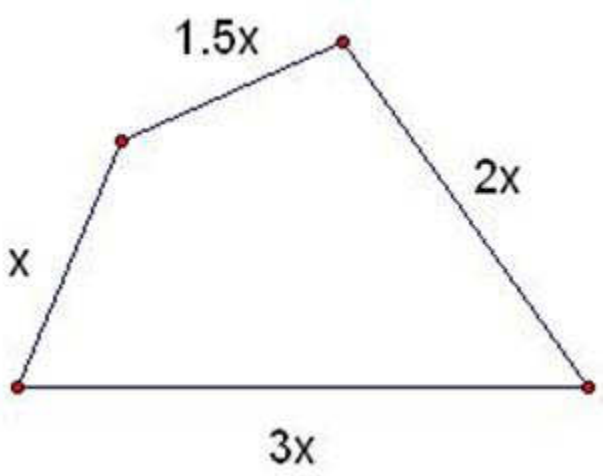
18. Simplify $5+8\times3+2$

19. Simplify $12+(3\times2)^2-8$

20. Which is correct, (a) or (b)?

a) $\frac{(4-2)^2+5}{3}=(4-2)^2+5\div3$ b) $\frac{(4-2)^2+5}{3}=\left[(4-2)^2+5\right]\div3$

21. Suppose your first three test scores in Algebra class are 87, 92, and 81. Write an expression that represents your average score and then evaluate the expression.



22. Write an expression for the perimeter of the figure. Then use the expression to find the perimeter when $x = 4.2$ feet.

Chapter 1, Section 1.5

Check whether the given number is a solution of the equation.

23. $3 + 2x = 9$. $x = 2$

24. $2y + y = 2y + 5$. $y = 5$

25. $5 + x > 8$. $x = 4$

26. $x - 7 \geq 11 - x$. $x = 9$

27. a) Suppose you are shopping at the mall and see a t-shirt you really like. The shirt costs $18.75, including tax. If you save $5 / week, how many weeks must you save to buy the shirt, and how much money will you have left?

b) Suppose the problem is modeled by the equation $5n - m > 18.75$. What does n represent? What does m represent? What does 18.75 represent?

Chapter 1, Section 1.6

Translate each phrase into an algebraic expression or equation

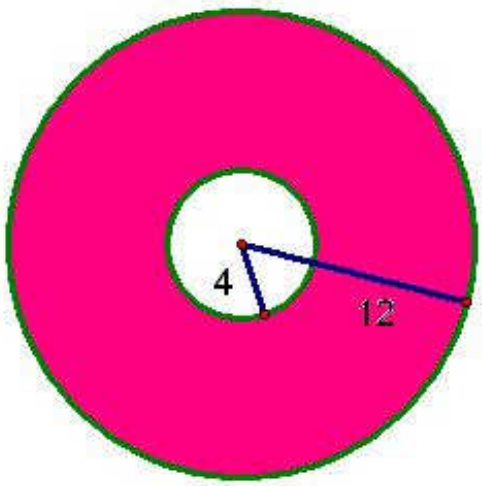
28. Twelve decreased by three times a number.

29. The difference between three times a number and twelve.

30. Three times the difference of a number and twelve.

31. Ten less than a number is five.

32. Write an expression that represents the area A of the shaded region. (The area of a circle is $A = \pi r^2$)



33. Suppose that you own a collection of rare coins. Your favorite coin will be 50 years old in only six years. Let c be the coin's age now. Which equation (a) or (b) correctly models this situation?

(a) $c - 6 = 50$ (b) $c + 6 = 50$

Chapter 1, Section 1.7

34. Gabriella decided to purchase a computer that costs $1500. She used the money she saved from babysitting and from birthday presents to make a $575 down payment. She borrowed the rest of the money from her parents. If Gabriella repays her parents in 20 equal payments, how much will each payment be?

Chapter 1, Section 1.8

The data below gives the number of hours that 30 students in a class studied in a week.

7, 4, 10, 8, 5, 2, 7, 12, 3, 4, 12, 7, 15, 3, 6, 9, 11, 10, 7, 2, 8, 7. 5, 6, 18, 6, 1, 0, 17, 13.

35. What is the average number of study hours for students in this class?

36. Construct a frequency distribution for this data.

37. Construct a bar graph for this data.

38. A peregrine falcon sights a sparrow three miles away. If the falcon's average speed is 180 mph during the attack, how long will it take the falcon to reach the sparrow?

Chapter 2, Section 2.1

39. What is the opposite of 6? What is the absolute value of 6?

40. Bromley's Alpine Slide in Peru, Vermont is the longest alpine slide in the world. It is 4,600 feet long. What speed must you average in order to complete the slide in 8 minutes?

41. Solve for x:

a) $|x| = 2$ b) $|x| = 0$ c) $|x| = -1$ d) $|x| = |-x|$

42. A ball is dropped from a third story window at a rate of 15 ft/sec. What is the ball's velocity? What is the ball's speed?

Chapter 2, Section 2.2 and 2.3

43. Evaluate $-6+3-4-^{-}1$

44. Evaluate $-3-3-^{-}3+10-15$

45. The water temperature in an outdoor pool is 60^{o}F and rises 2^{o} per day for four days. After a rainstorm the temperature drops 5^{o} on the fifth day. If the temperature continues to drop 5^{o} per day, what is the temperature on the third day after it begins to drop?

Chapter 2, Section 2.4

46. Find the sum of the matrices $\begin{bmatrix} 2 & 1 & -2 \\ 3 & 0 & 3 \end{bmatrix} + \begin{bmatrix} 1 & -3 & 4 \\ 2 & 5 & -5 \end{bmatrix}$

Chapter 2, Section 2.5

47. Find the product (5)(-2c)

48. Find the product (11)(-5y)(-6)

49. Evaluate $2x^2 - 4x$ when $x = -3$.

50. Evaluate $-6x + x$ when $x = 9$

Chapter 2, Section 2.6

51. Use the Distributive Property to simplify $3(y + 6)$

52. Use the Distributive Property to simplify $-4(y - 2)$

53. Simplify the expression $2x + 9x + 4$

54. Simplify the expression $-3(x + 1) - 2$

Chapter 2, Section 2.7

55. Compute $-9 \div \frac{1}{2}$

56. Simplify $84x \div \frac{-4}{5}$

57. Use the Distributive Property to simplify the expression $\frac{9x - 27}{3}$

58. Evaluate $\frac{xy}{3x + 4y}$ when $x = 4$ and $y = 1/2$

Chapter 2, Section 2.8

59. Kevin can ride his bicycle 42 miles in 5 hours. What is his average speed in miles per hour?

60. A store sells a box of 5 Yogurt Delight frozen yogurt bars for $1.20. The same store sells a box of 7 Dreamy Yogurt frozen yogurt bars for $1.59. Find the unit price per bar for each type and decide which is the better buy.