

Chapter 3 Section 5: Evaluating Expressions

Problems

Evaluate each algebraic expression for the indicated values. Simplify all answers.

1. $5x$, for $x = 9$

2. $8x$, for $x = 6$

3. $-6x^2$, for $x = 3$

4. $-4x^2$, for $x = 2$

5. $16x^3$, for $x = -\frac{1}{4}$

6. $81x^3$, for $x = -\frac{1}{9}$

7. $r + s - 9$, for $r = 6$ and $s = 13$

8. $p - q + 11$, for $p = 7$ and $q = 15$

9. $5x$, for $x = -3$

10. $2RT$ for $T = -4$ and $R = 18$

11. $3m + (5m - 2)$, for $m = -4$

12. $AB - (A - (1 - B))$, for $A = 5$ and $B = -4$

13. $1 - 2(x - 3y)$, for $x = -1$ and $y = -3$

14. $\frac{u}{3k}$, for $k = 6$ and $u = -16$

15. $\frac{8ab}{3c}$, for $a = 6$, $b = 5$, and $c = -4$

16. $\frac{6r^2}{7st}$, for $r = 4$, $s = -8$, and $t = 3$

17. $(2n + 3m) + (3a - b)$, for $a = -1$, $b = 2$, $m = 0$, and $n = 5$

18. $\frac{5 + d - e}{24f}$, for $d = 15$, $e = -8$, and $f = -2$

19. $\frac{36z}{w - 11 - y}$, for $w = 29$, $y = -3$, and $z = 10$

20. $\frac{9de}{4f}$, for $d = 6$, $e = 7$, and $f = 10$

21. $\frac{2wx}{3yz}$, for $w = 12$, $x = 14$, $y = 91$, and $z = 18$

22. $\frac{11ab}{13cd}$, for $a = 91$, $b = 24$, $c = 121$, and $d = 36$

23. $3x^2 + x - 2$, for $x = -3$

Write and evaluate expressions for each situation described below.

John teaches computing to a class of S students. Joel's computing class has T students, and Maria's class has one-third as many students as are in the other two classes combined.

- 24. How many students are in Maria's class? Write an expression. _____
- 25. How many students are in all three classes? Write an expression _____
- 26. Evaluate the expression of Problem 24 in the case that John has 17 students and Joel has 22 students. _____
- 27. Evaluate the expression of Problem 25 in the case that John has 23 students and Joel has 19 students. _____

José bought a CD storage box for D dollars and a dozen CDs for d dollars each. The store deducted these costs from his paycheck of P dollars.

- 28. Write an expression for the cost of the CDs. _____
- 29. How much did the CDs and the storage box cost? _____
- 30. How much was left from José's paycheck after buying the CDs and storage box? _____
- 31. Evaluate Problems 28 – 30 for $D = 5.95$, $d = 2.49$, and $P = 143.21$.
Problem 28: _____
Problem 29: _____
Problem 30: _____

A local cell phone company charges \$10.95 per month plus \$0.15 per minute of airtime used.

- 32. Write an expression for the cost C to have this cell phone plan for one month and use m minutes of airtime. _____
- 33. Evaluate your expression if you use 300 minutes in one month. _____
- 34. Evaluate your expression if you use the phone 100 minutes in one month. _____

Jet-skis Unlimited rents Jet-skis at a local lake for \$20 per each 15 minutes, plus a \$9.50 insurance fee for the rental.

35. Write an expression for the cost to rent a jet-ski from Jet-skis Unlimited for t 15 minute intervals.

36. Find the cost to rent a jet-ski for 30 minutes. (Hint: 30 minutes is two 15 minute intervals).

37. Find the cost to rent a jet-ski for 1 hour.

It costs \$.50 per word, plus \$10.50 to make a customized license plate frame for a car.

38. Write an expression for the cost to make a customized license plate frame with w words on it.

39. Find the cost to make a license plate frame with 10 words on it.

40. Write an expression for the total cost (T) of making p license plate frames with w words on it.

41. How much does it cost to make 4 license plate frames with 13 words on each?
