1.2 Start Thinking

In 2007, the average American high school student spent 6.8 hours on homework per week. Suppose you kept track of the amount of time you spent on homework from last Monday through last Thursday. How can you use an equation to find the amount of time you need to spend on Friday to equal the national average in 2007?

1.2 Warm Up

Simplify the expression.

1. $\left(2x^2 - 6x\right) - \left(-2x^2 + 3x\right)$

2. $\left(5a^2 - a\right) - \left(2a^2 - 5a\right)$

3. $\left(4y^2 + y\right) - \left(6y^2 - 5y\right)$

4. $\left(-2d^2 - d\right) - \left(5d^2 - 5d\right)$

5. $\left(2h^2 + 5z\right) + \left(2h^2 + 9z\right)$

6. $\left(2y^2 + 9xy\right) + \left(3y^2 - 2xy\right)$

1.2 Cumulative Review Warm Up

Determine whether the given number is a solution to the equation.

1. $6x + 1 = 7x - 1; x = 2$

2. $5 - 4x = 2x^2 + x; x = 3$

3. $2y - \frac{2}{3} = 2; y = \frac{4}{3}$

4. $\frac{4u}{3} = -8; u = -6$

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1.2 Practice A

In Exercises 1–6, solve the equation. Check your solution.

1. $5t + 2 = 12$

2. $14 = 9 - p$

3. $\frac{h}{2} + 7 = 10$

4. $\frac{k - 4}{3} = 3$

5. $35 = 2b + 5b$

6. $9f + 4 - 7f = 8$

7. The cost c (in dollars) of renting a paddle board for h hours is given by $c = 25 + 7h$. After how many hours is the cost \$81?

In Exercises 8–10, solve the equation. Check your solution.

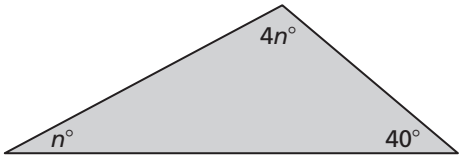
8. $-3(2r + 7) = 3$

9. $4 + 6(7 - m) = 4$

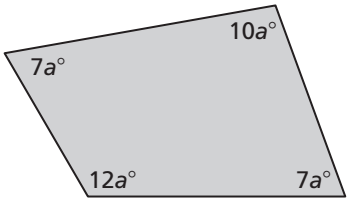
10. $19 = 15w - 4(3w - 1)$

In Exercises 11 and 12, find the value of the variable. Then find the angle measures of the polygon. Use a protractor to check the reasonableness of your answer.

11. Sum of angle measures: 180°



12. Sum of angle measures: 360°



In Exercises 13–16, write and solve an equation to find the number.

13. The sum of 4 and three times a number is 19.

14. The difference of twice a number and 7 is 9.

15. Ten less the quotient of a number and 3 is 6.

16. Five times the sum of a number and 4 is –15.

In Exercises 17 and 18, write and solve an equation to answer the question. Check that the units on each side of the equation balance.

17. You purchase two bottles of sunscreen and a hat. The hat costs \$6.50. You pay 6% sales tax. You pay a total of \$16.43. How much does one bottle of sunscreen cost?

18. The perimeter of a patio is 64 feet. The width of the patio is 12 feet and the length of the patio is $(x + 6)$ feet. What is the length of the patio?

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1.2 Practice B

In Exercises 1–6, solve the equation. Check your solution.

1. $8 = \frac{t}{-3} + 4$

2. $\frac{p + 5}{-2} = 9$

3. $3k + 2k = 60$

4. $-43 = 12 - 6p + p$

5. $28 = 8b + 13b - 35$

6. $-11j - 6 + 3j = -30$

7. A bill to landscape your yard is \$720. The materials cost \$375 and the labor is \$34.50 per hour. Write and solve an equation to find the number of hours of labor spent landscaping your yard.

In Exercises 8–11, solve the equation. Check your solution.

8. $12 - 5(3r + 2) = 17$

9. $3(x - 2) + 5(2 - x) = 16$

10. $3 = -1(v - 4) + 4(2v - 9)$

11. $6(q - 7) - 3(4 - q) = 0$

In Exercises 12–14, write and solve an equation to find the number.

12. Seven plus the quotient of a number and 5 is -12.

13. The difference of three times a number and half the number is 60.

14. Eight times the difference of a number and 3 is 40.

15. Justify each step of the solution.

$7 - 2(x - 10) = 15$	Write the equation.
$7 - 2(x) - 2(-10) = 15$	
$7 - 2x + 20 = 15$	
$-2x + 27 = 15$	
$-2x = -12$	
$x = 6$	

16. An odd integer can be represented by the expression $n + 2$, where n is any odd integer. Find three consecutive odd integers that have a sum of -51.

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1.2 Enrichment and Extension

Consecutive Integers

In algebra, there are many problems that involve working with consecutive integers. To solve this type of problem, you must first know how to represent these numbers algebraically.

Example: Find three consecutive odd integers with a sum of 57.

A common way to represent any odd integer is to write the number as $2n + 1$, where n is any integer. Notice the expression $2n$ always results in an even integer. So, when you add 1, the integer is odd. If $2n + 1$ is the first odd integer, then add 2 to get to the next consecutive odd integer, $2n + 3$, and so on.

$(2n + 1) + (2n + 3) + (2n + 5) = 57$

Write and solve an equation for the consecutive integer problem.

1. Find four consecutive even integers with a sum of -52.
2. Find two consecutive integers with a sum of 29.
3. Find four consecutive odd integers with a sum of 200.
4. If the lesser of two consecutive even integers is five more than half the greater, what are the two integers?
5. If the sum of the first two consecutive even integers is equal to three times the third, what are the three integers?
6. Find four consecutive integers such that three times the sum of the first two integers exceeds the sum of the last two by 70.
7. Find a set of five consecutive integers such that the greatest integer is three times the least.

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1.2 Puzzle Time

Why Did The Muffler Quit The Car Business?

Write the letter of each answer in the box containing the exercise number.

Find the value of the variable which satisfies the equation.

1. $4a - 5 = 11$

2. $16 = 17 - t$

3. $8 = \frac{k}{-3} - 2$

4. $\frac{b + 7}{4} = 9$

5. $12c + 6c = 36$

6. $14x + 11x + 10 = 85$

7. $19w - 13 - 6w = -39$

8. $-4(2n - 5) = -28$

9. $8s + 3(12 - 7s) = 49$

10. $-18 = 15z - 9(2z - 2)$

Solve an equation to find the number.

11. The difference of six times a number and 7 is -49.

12. Negative sixteen plus the quotient of a number and -4 is -3.

13. The sum of two times a number and 11 is -7.

14. The total cost for a week at camp is $220. You have $140. You earn $16 for every item you sell in a fundraiser. How many items do you need to sell to pay for a week at camp?

Answers

E. -7

T. 1

I. 6

E. 2

X. 5

D. -1

S. -30

A. 29

H. -2

W. 12

T. -52

A. 3

S. 4

U. -9

8	2		10	4	1		11	14	7	6	13	3	12	5	9