Lesson 3.6 Writing Algebraic Expressions

Translate each verbal description into an algebraic expression. Simplify the expression where possible.



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Complete.

1. Paige purchased 5x pounds of flour to make 4 identical sponge cakes. How much flour does each sponge cake require?

<u>5x</u>	shared among	4_
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	=	

Each sponge cake requires _____ pounds of flour.

2. David bought an antique watch for *w* dollars. He later sold it and made a 30% profit. Write an algebraic expression for the sales price of the watch.



Translate the verbal description into an algebraic expression. Simplify the expression where possible.

3. Gary earned x dollars and James earned $\frac{1}{3}x$ dollars last month. Gary saved half of his income and James saved one-fifth of his income. Write an expression for the total amount that Gary and James saved.

Solve. You may use a diagram, model, or table.

Example

a) The length of a basketball court is (8x - 10) feet and its width is 6x feet. Write an algebraic expression for the perimeter of the court.

Perimeter of the field:

$$(8x - 10) + 6x + (8x - 10) + 6x = 28x - 20$$

The perimeter of the court is (28x - 20) feet.

- (8x 10) ft (8x - 10) ft (5x - 10) ft (8x - 10) f
- **b)** At a supermarket, cherry tomatoes are sold for \$0.75 per pound, zucchinis are sold for \$1.80 per pound, and red peppers are sold for \$3.45 per pound. Danny bought x pounds of cherry tomatoes, $\frac{1}{2}x$ pounds of zucchinis, and 3y pounds of red peppers. What was the total cost of the vegetables purchased by Danny?

Vegetable	Price Per Pound	Total Weight	Cost
Cherry Tomatoes	\$0.75	х	\$0.75 <i>x</i>
Zucchinis	\$1.80	$\frac{1}{2}x$	\$0.90x
Red Peppers	\$3.45	3у	\$10.35 <i>y</i>

Total cost of vegetables:

0.75x + 0.90x + 10.35y = (1.65x + 10.35y)

The total cost of the vegetables was (1.65x + 10.35y).

c) Sandy had *m* balloons, but then 5 balloons burst. She divided the rest equally among her 6 nieces. How many balloons did each niece receive?



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Complete.

4. Felicia drew an isosceles triangle with a base length of 3x inches and side lengths of $\left(\frac{1}{4}x + 3\right)$ inches. Write an algebraic expression for the perimeter of the triangle.

Perimeter of the triangle:

_____+ _____+



The perimeter of the triangle is _____ inches.

Solve. You may use a diagram, model, or table.

5. The admission fees to an amusement theme park are \$45 per adult and \$25 per child. A tour group of 2x adults and (3x - 8) children visited the park. How much did the tour group pay in total?

6. A one-way train ticket from New York to Los Angeles costs \$197 for a reclining seat, and \$490 for a twin-sharing room. How much would it cost if x passengers booked reclining seats and ¹/₅ y passengers booked twin-sharing rooms?

7. Colin had x dollars to spend in a week. He spent \$20 on Monday and on Tuesday. He then spent the rest equally on each day for the rest of the week. How much did Colin spend on Thursday?