

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

1. Which expression is not equivalent to the other three? Justify your reasoning.

$$-8 - 7n + 16n$$

$$9(n - 8)$$

$$n - 8 + 8n$$

$$9n - 8$$

2. The Galleria is having a HUGE sale! Any clothing item is 40% off.

- a. Calculate the sale price of these items. Round to the nearest cent.

Item	Regular Price	Show your work!	Sale Price
Jeans	\$39.95		
T-shirt	\$22.99		
Coat	\$89.90		
Belt	\$17.99		

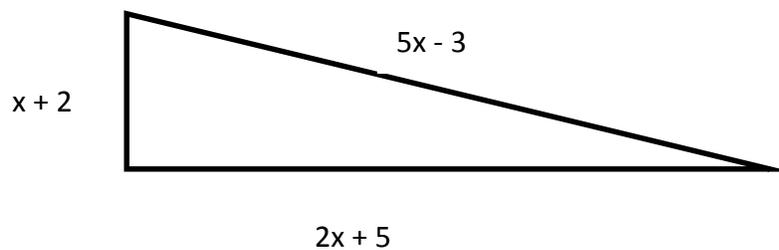
- b. Describe the pattern you see when calculating the sale price.

- c. If the regular price of an item is ' $m$ ', write an expression for the sale price of any item.

3. Write a real world problem for the expression  $5.75n + 25$ .

4. At a back-to-school sale, you buy some shoes for \$25.00 each and the same number of socks for \$2.50 each. Write two expressions that represent the total amount spent.

5. Write a linear expression to represent the perimeter of the triangle.



6. Delilah ( $d$ ) is 4 years younger than her brother Zeke ( $z$ ). Zeke is twice as old as their sister Felicity ( $f$ ).
- a. Select all expressions that represent the sum of their ages.

$d - 4 + z + 2f$	$f + 2f + (z - 4)$	$2f + z + (z - 4)$
$(z - 4) + z + \frac{1}{2}z$	$(d + 4) + z + 2f$	$d + (d + 4) + \frac{1}{2}(d + 4)$

- b. Suppose you were given the sum of the three ages. Which expression would you choose to use to write an equation in order to solve for Zeke's age? Explain why this is the best choice.
- c. Suppose you were given the sum of the three ages. Which expression would you choose to use to write an equation in order to solve for Delilah's age? Explain why this is the best choice.

7. Which contexts are represented by the expression:  $3(n + 4) - 1$ ?
- The grocery store is giving a discount on potatoes. If you buy 3 packages of 4 potatoes, you save \$1.
  - Zach has 3 equal bags of red and blue candies. Each bag had 4 more red candies than blue candies, but Zach ate one candy.
  - Jonas has 4 more apples than Maya. If he gives one away, he will have three times as many apples as Maya does.
  - Nick, Tyler, and Josh played 3 video games at the arcade. Nick had 4 more tokens than Tyler and Josh had 1 less token than Nick. How many tokens did they start with?
  - Bushes are on sale at Garden Mart. Sam buys 3 bushes and pays 4 dollars extra per bush to have them planted and used his \$1 off coupon.

## Answer Key

1. Which expression is not equivalent to the other three? Justify your reasoning.

$-8 - 7n + 16n$       This is not equivalent because it is  $9n - 72$  when distributed. All others are equivalent to  $9n - 8$ .

$9(n - 8)$

$n - 8 + 8n$

$9n - 8$

2. The Galleria is having a HUGE sale! Any clothing item is 40% off.

- a. Calculate the sale price of these items. Round to the nearest cent.

Item	Regular Price	Show your work!	Sale Price
Jeans	\$39.95	$39.95 \times .6$ or $39.95 - (.4 \times 39.95)$	\$23.97
T-shirt	\$22.99	$22.99 \times .6$ or $22.99 - (.4 \times 22.99)$	\$13.79
Coat	\$89.90	$89.90 \times .6$ or $89.90 - (.4 \times 89.90)$	\$53.94
Belt	\$17.99	$17.99 \times .6$ or $17.99 - (.4 \times 17.99)$	\$10.79

- b. Describe the pattern you see when calculating the sale price.

*Answers will vary:*

- When you multiply .99 by .6 you end up with .79 each time.
- Each time we are multiplying by .6.
- The process is the same each time.

- c. If the regular price of an item is 'm', write an expression for the sale price of any item.

$.6m$

3. Write a real world problem for the expression  $5.75n + 25$ .

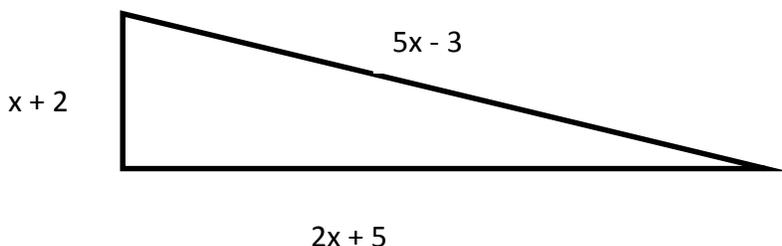
*Answers will vary.*

4. At a back-to-school sale, you buy some shoes for \$25.00 each and the same number of socks for \$2.50 each. Write two expressions that represent the total amount spent.

$$25n + 2.50n$$

$$27.50n$$

5. Write a linear expression to represent the perimeter of the triangle.



$$(5x - 3) + (x + 2) + (2x + 5)$$

6. Delilah ( $d$ ) is 4 years younger than her brother Zeke ( $z$ ). Zeke is twice as old as their sister Felicity ( $f$ ).
- a. Select all expressions that represent the sum of their ages.

$d - 4 + z + 2f$	$f + 2f + (z - 4)$	$2f + z + (z - 4)$
$(z - 4) + z + \frac{1}{2}z$	$(d + 4) + z + 2f$	$d + (d + 4) + \frac{1}{2}(d + 4)$

- b. Which expression would you choose to use to solve for Zeke's age? Explain why this is the best choice.  
 $(z - 4) + z + \frac{1}{2}z$  would be the best choice because it is written in terms of  $z$ .
- c. Which expression would you choose to use to solve for Delilah's age? Explain why this is the best choice.  
 $d + (d + 4) + \frac{1}{2}(d + 4)$  would be the best choice because it is written in terms of  $d$ .
7. Which contexts are represented by the expression:  $3(n + 4) - 1$ ?
- The grocery store is giving a discount on potatoes. If you buy 3 packages of 4 potatoes, you save \$1.
  - Zach has 3 equal bags of red and blue candies. Each bag had 4 more red candies than blue candies, but Zach ate one candy.
  - Jonas has 4 more apples than Maya. If he gives one away, he will have three times as many apples as Maya does.
  - Nick, Tyler and Josh played 3 video games at the arcade. Nick had 4 more tokens than Tyler and Josh had 1 less token than Nick. How many tokens did they start with?
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