

Name hex

Date _____

Unit 3 - Quiz 1

Combine like terms to simplify the expression.

- $3x + 4 + 2x$ $5x + 4$
- $5y - 12 + 2y$ $7y - 12$
- $-9x - 4x + 22 + 3x$ $-10x + 22$
- $2x - 4x + 17 - 9x - 3$ $-11x + 14$
- $-5 + 16x + 20x - 8$ $36x - 13$
- $23x - 12y - 9x + 14 + 8y$ $14x - 4y + 14$
- $-2a - 5b + 7a + 9a - 14a$ $-5b$
- $98k + 2k - 5j + 4k + 9j$ $104k + 4j$
- $19x - 24y + 22y - 16x + 20z - 12$ $3x - 2y + 20z - 12$
- $15x - 17x^2 + 3 + 2x^2$ $-15x^2 + 15x + 3$

Simplify each expression.

- $3(x+7)$ $3x + 21$
- $-4(y+7-9)$ $-4y - 8$
- $9(a+b+c)$ $9a + 9b + 9c$
- $6(-3-8y)$ $-18 - 48y$
- $-2(x-5)$ $-2x + 10$
- $4p - 2(p+3)$ $2p - 6$
- $-2(x+7) - 12 + 8$ $-2x - 18$
- $-4(\frac{3}{4}n + 7)$ $-3n - 28$
- $-c - 8(4c - 5) - (-18c)$ $-15c + 40$
- $d + 7a - 4(d + 2)$ $7a - 3d - 8$

Write each expression as a product of two factors.

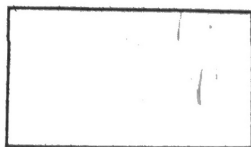
- $15a - 25$ $5(3a - 5)$
- $21x + 9$ $3(7x + 3)$
- $81 - 54x$ $9(9 - 6x)$
- $28x + 49x - 14$ $7(4x + 7x - 2)$ or $7(11x - 2)$
- $32y + 8y - 4y$ $4y(8 + 2 - 1)$ or $4y(9)$ or $36y$

Show all your work for the following short answer questions.

- The figure shows the length and width of a rectangle in feet.
 - What is an expression in simplest form for the perimeter of the rectangle?
 - What is the area of the rectangle?

$A = 3x(4x + 2)$

$A = 12x^2 + 6x$



4x+2

3x

$P = 2(3x) + 2(4x + 2)$

$P = 6x + 8x + 4$

$P = 14x + 4$

2. A square measuring $2x$ on each side is increased by 5 in length and decreased by 1 in width. What is the perimeter if $x=3$?

Let length = $2x + 5$
 Let width = $2x - 1$

$$P = 2(2x+5) + 2(2x-1)$$

$$P = 4x+10 + 4x-2$$

$$P = 8x+8$$

$$P(3) = 8(3) + 8$$

$$P(3) = 24 + 8 = 32$$

3. Jack earns \$60 a day working in a store. For every shirt he sells, he earns \$10.50 extra. If the shirt is gift wrapped, he earns an extra \$1.50. Jack must take public transportation to work every day which costs him \$7.

- a. On Thursday, Jack sells s shirts that all include gift wrapping. Write a simplified expression to represent the total amount in dollars Jack makes on Thursday.

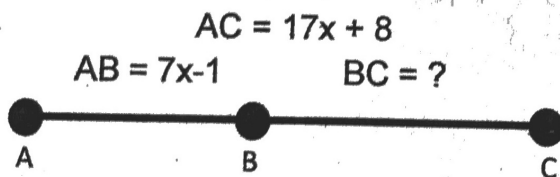
$$60 + 10.50s + 1.50s - 7$$

$$12s + 53$$

- b. If $s = 8$, how much money does Jack make?

$$12(8) + 53 = 96 + 53 = \$149$$

4. The figure shows the lengths of segment AC and segment AB in centimeters.



- a. Write a simplified expression for the length of segment BC.

$$17x + 8 - (7x - 1)$$

$$17x + 8 - 7x + 1$$

$$10x + 9$$

- b. If $x = 5$, which is longer, segment AB or segment BC?

$$\text{BC}$$

$$10(5) + 9$$

$$50 + 9$$

$$59$$

$$\text{AB}$$

$$7(5) - 1$$

$$35 - 1$$

$$34$$

BC