Name __*Key*__

Knowledge and Understanding

1. Explain the difference between the solutions to an equation and an inequality.

   Equation : 1 Solution
   Inequality: infinite Solutions

2. Describe the difference between an expression and an equation.

   Expression: #'s, Variables & operations; can be Simplified   *Equation: 2 equal expressions; can be solved*

3. What would be the steps that you would take to simplify the following expression: $2(x-3)+5$

   ① distribute the 2 to x and -3 $2x-6+5$
   ② combine like terms $2x-1$

Proficiency of Skills

4. Simplify: $5(2a-2b)+5(3a+2b)$

   $25a$

4. Simplify: $8-(x-5)-3x$

   $-4x+13$

5. Solve: $-1+3x=56$

   $X=19$

6. Solve: $8x-5=-29$

   $X=-3$

7. Solve: $2x+13 \geq -27$

   $X \geq -20$

8. Solve: $-7x-5<16$

   $X>-3$

Application

9. To get a learner's permit, one must be at least tha16 years old. Write an inequality to represent y, the required age to get a permit.
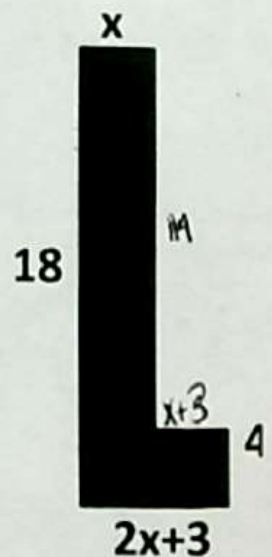
   $y \geq 16$

10. Write a simplified expression that represents the PERIMETER of the figure.

    $4x+42$

11. Write a simplified expression that represents the AREA of the above figure.

    $22x+12$

Figure labels: X, 18, x+3, 4, 2x+3

Write the following statement as an algebraic equation:

✓ 12. "Three more than the product of a number and six is equal to two less than the number."

$6x + 3 = x - 2$

✓ 13. Twelve less than three times a number is 9. What is that number?

$3x - 12 = 9 \qquad x = 7$

14. Charles owns a boat rental company. He uses the equation $c = 4.50h + 10$ to determine the cost of boat rental where c=cost and h=hours of rental. If a customer is charged $37.00, how long was the boat rented for?

6 hours

$37 = 4.50h + 10$
$-10 \qquad\qquad -10$
$\dfrac{27}{4.50} = \dfrac{4.50h}{4.50} \qquad h = 6\ hours$

15. Chuck and Sam run each day for exercise. Sam runs twice as far as Chuck each day. If together they run 7 miles, how many miles does Sam run each day?

Sam $= 2c$
Chuck $= c$

$2c + c = 7$

$4\frac{2}{3}$ miles

16. James has spent $32 of his $50 Target gift card. He plans on using the remaining balance to buy gum. If the gum costs $2.50 a pack, how much gum can he purchase?
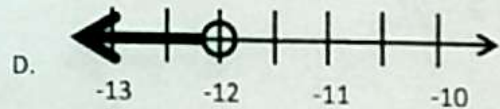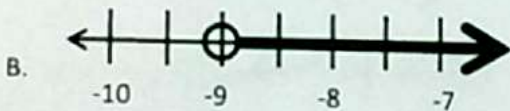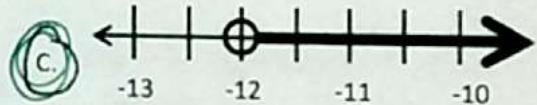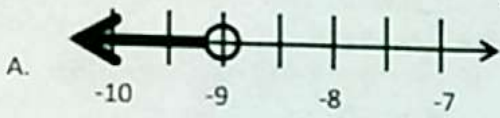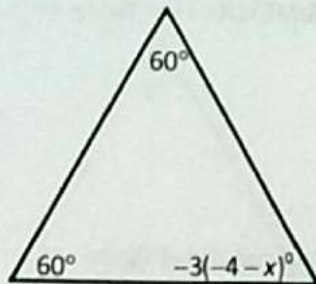
$x = 7.2$

7 packs of gum

$\$2.50x + 32 = 50$
$\qquad\quad -32 \quad -32$
$\dfrac{2.50x}{2.50} = \dfrac{18}{2.50} \qquad x = 7.2$

17. Which of the following shows the solution to $3 + \dfrac{x}{3} > -1$? -3 $\quad 3 \cdot \dfrac{x}{3} > 4 \cdot 3 \quad x > 12$

A.

B.

C.

D.

18. Find the value of x in the diagram below.

The sum of the angles in a triangle=180 degrees

60°

60° $-3(4-x)°$

$-3(-4-x) = 60$
$12 + 3x = 60$
$-12 \qquad -12$
$\dfrac{3x}{3} = \dfrac{48}{3}$
$x = 16$

A. $15\frac{2}{3}$ B. 18   C. 60   D. Not here

19. Sue makes $10 an hour babysitting. She needs at least $280 to pay her bills. She has $120 already saved. Which inequality best describes the number of hours, h, that she would need to babysit in order to pay her bills?

A. $120 + 10h \geq 280$ B. $120 + 10h \leq 280$ C. $120 + 10 + h \leq 280$ D. $10h \geq 280$