

Name: key

Date: \_\_\_\_\_

### Algebra I Midterm Review 6

For questions 1-5, solve for x:

1.  $3x + 4x - 7 = 8 - 3x + 11$

$$\begin{array}{r} 7x - 7 = 19 - 3x \\ +3x \qquad +3x \\ \hline 10x - 7 = 19 \\ +7 \qquad +7 \\ \hline \end{array}$$

$$\frac{10x}{10} = \frac{26}{10}$$

$$\boxed{x = 2.6}$$

2. If three times a number is increased by 24, the result is six times the same number.

$$\begin{array}{r} 3x + 24 = 6x \\ -3x \qquad -3x \\ \hline 24 = 3x \\ \frac{24}{3} = \frac{3x}{3} \end{array}$$

$$\boxed{x = 8}$$

3.  $3(x - 2) = 5(2x - 10)$

$$\begin{array}{r} 3x - 6 = 10x - 50 \\ +6 \qquad +6 \\ \hline 3x = 10x - 44 \\ -10x - 10x \\ \hline \end{array}$$

$$\frac{-7x}{-7} = \frac{-44}{-7}$$

$$\boxed{x = \frac{44}{7}}$$

4.  $2a - bx = c$

$$\begin{array}{r} -2a \qquad -2a \\ \hline -bx = c - 2a \\ \hline \end{array}$$

$$\boxed{x = -\frac{c - 2a}{b}}$$

5.  $\frac{1}{2} = \frac{3x}{6}$

$$\frac{6}{6} = \frac{6x}{6}$$

$$\boxed{1 = x}$$

6. Determine the product of  $2x^2 - 5x + 3$  and 5.

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

$$\boxed{10x^2 - 25x + 15}$$

7. Determine and state the product of  $x^2 + 3x - 4$  and  $x - 2$

$$(x-2)(x^2+3x-4) \times \begin{array}{r} x^2+3x-4 \\ x^3+3x^2-4x \\ -2x^2-6x+8 \\ \hline x^3+x^2-10x+8 \end{array}$$

$$\boxed{x^3 + x^2 - 10x + 8}$$

8. If the point  $(3, 2)$  lies on the graph of the equation  $2x + ky = -4$ , find the value of  $k$ .

$$2x + ky = -4$$

$$2(3) + k(2) = -4$$

$$\begin{array}{r} 6 + 2k = -4 \\ \underline{-6} \phantom{=} \\ 2k = -10 \\ \frac{2k}{2} = \frac{-10}{2} \end{array}$$

$$\boxed{k = -5}$$

9. If point  $(h, 1)$  is on the graph of the equation  $5x - 4 = y$ , find the value of  $h$ .

$$5h - 4 = 1$$

$$\begin{array}{r} 5h - 4 = 1 \\ \underline{+4} \phantom{=} \\ 5h = 5 \\ \frac{5h}{5} = \frac{5}{5} \end{array}$$

$$\boxed{h = 1}$$