

Name Keny

Write solutions in the space provided (no credit for work on separate paper). Reduce fractions if possible. Scientific calculator is allowed. No notes, books, phones, or other electronics allowed. Each problem is 6 points.

1. Evaluate the expression for  $p = -4$ :  $p^2 + 3p + 1$

$$(-4)^2 + 3(-4) + 1$$

$$16 - 12 + 1 = 4 + 1 = 5$$

2. Subtract:  $\frac{5 \cdot 3}{5 \cdot 4} - \frac{13}{20}$

$$\frac{15}{20} - \frac{13}{20} = \frac{2}{20} = \frac{1}{10}$$

3. Simplify:  $23 - 96 - (-11) + 96 + (-18)$

pos                      Neg

$$\begin{array}{r} 23 \\ 11 \\ \hline 34 \end{array} - 18 = 16$$

Cancel's

$$\begin{array}{r} -96 + 96 = 0 \\ 34 \\ -18 \\ \hline 16 \end{array}$$

4. Multiply:  $\frac{(-2)(-3)(4)}{(-5)(-6)}$

$$= \textcircled{+} \frac{2 \cdot 3 \cdot 4}{5 \cdot 6} = \frac{4}{5}$$

4 neg signs → pos

5. Simplify:  $11 - 4(8 - 3^2)$

$$11 - 4(8 - 9)$$

$$11 - 4(-1)$$

$$11 + 4 = 15$$

6. Simplify:  $\frac{10+2^3}{11+(-3)^2} = \frac{10+8}{11+9} = \frac{18 \div 2}{20 \div 2} = \frac{9}{10}$

7. a) Translate to algebra: 8 less than the product of 5 and a number is 12

$$5x - 8 = 12$$

b) Solve the equation from part a)

$$\begin{array}{r} 5x - 8 = 12 \\ +8 \quad +8 \end{array}$$

$$5x = 20$$

$$; x = 4$$

8. Solve:  $-8 = 3p - 10p + 13$

$$\begin{array}{r} -8 = -7p + 13 \\ -13 \quad -13 \\ \hline \end{array}$$

$$-21 = -7p \quad ; p = 3$$

9. Solve:  $-5.2 - x = 7.9$

$$\begin{array}{r} -5.2 - x = 7.9 \\ +5.2 \quad +5.2 \end{array}$$

$$-x = 13.1$$

$$x = -13.1$$

10. Solve:  $3(y - 6) = -4(y - 2)$

$$\begin{array}{r} 3y - 18 = -4y + 8 \\ +4y \quad \quad +4y \end{array}$$

$$\begin{array}{r} 7y - 18 = 8 \\ +18 \quad +18 \end{array}$$

$$7y = 26$$

$$y = 26/7$$

← LCD is 10

11. Solve:  $\frac{3}{5} + \frac{x}{10} = \frac{5}{2}$

$$\frac{\textcircled{3} \cdot \textcircled{2}}{\cancel{10}} + \frac{x \cdot \textcircled{10}}{\cancel{10}} = \frac{\textcircled{5} \cdot \textcircled{5}}{\cancel{2}}$$

$$\begin{array}{r} 6 + x = 25 \\ -6 \quad -6 \end{array}, \quad x = 19$$

12. The amount of tax a person pays is calculated using the formula:

$$T = 0.15(x - 12,000), \text{ where } T \text{ is tax paid, and } x \text{ is annual income}$$

How much tax should be paid on an annual income of \$30,000?

$$T = 0.15(30,000 - 12,000) = 0.15(18,000)$$

$$\begin{array}{r} 18000 \\ \cdot 15 \\ \hline 90000 \end{array}$$

$$\begin{array}{r} 90000 \\ \cdot 10 \\ \hline 270000 \end{array}$$

$$= \$2700$$

13. Solve the formula:  $y = 3x - 4$  for the variable  $x$

$$\begin{array}{r} y = 3x - 4 \\ +4 \quad \quad +4 \end{array}$$

$$\frac{y+4}{3} = \frac{3x}{3}$$

$$\Rightarrow x = \frac{y+4}{3}$$

