Name: KEY / Date: _____

Mathematics 9
Unit 6 Solving Linear Equations Practice Test

Part A: Multiple Choice – Circle your answer.

1. Solve for "*a*" in the equation $36 - 2a = -8$

   a. $a = -46$ b. $a = -22$ c. $a = 22$ d. $a = 44$

2. The formula for the area of a rectangle is $A = lw$, where l represents the length and w represents the width. A rectangle whose length is 8 cm has an area of 104 cm^2. Determine the width of this rectangle.

   a. 10 cm b. 13 cm c. 14 cm d. 18 cm

3. Solve for x: $4x - 3 = \frac{7}{3} - \frac{4x}{3}$

   a. $x = \frac{1}{8}$ b. $x = \frac{2}{3}$ c. $x = 1$ d. $x = 2$

4. Which expression is equivalent to $\frac{x+4}{5}$

   a. $5(x+4)$ b. $\frac{1}{5}(x+4)$ c. $x + 4 \div 5$ d. $5x + 0.8$

5. The length of a rectangular field is 7 metres greater than its width. If you used w to represent the width, what expression would you use for the length?

   a. $w + 7$ b. $w - 7$ c. $7w$ d. $\frac{w}{7}$

6. 15% of a number is 12. What is the number?

   a. 0.8 b. 1.8 c. 8 d. 80

7. x = 5 is a solution to which equation(s) in the chart below.

I	$-3x+12=42$
II	$3x+20=5(x+6)$
III	$6x+20=4x+30$
IV	$\frac{1}{3}x+3=5$
V	$6x=30$

a. II, III b. III,V c. I, IV d. II, V

Part B: Written Response – Show all work in a neat and organized manner for full marks.

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1. Solve each of the following equations

a. $\frac{10x}{10}=\frac{-40}{10}$

$x=-4$

b. $\frac{8}{x}=\frac{32}{1}, x\neq 0$

$\frac{32x}{32}=\frac{8}{32}$

$x=\frac{1}{4}$ or $x=0.25$

c. $24h-9=15$

$+9 \quad +9$

$\frac{24h}{24}=\frac{24}{24}$

$h=1$

d. $26=2-6t$

$-2 \quad -2$

$\frac{24}{-6}=\frac{-6t}{-6}$

$-4=t$

e. $5x+6=2(x+6)$

$5x+6=2x+12$

$-2x \quad -2x$

$3x+6=12$

$-6 \quad -6$

$\frac{3x}{3}=\frac{6}{3}$

$x=2$

f. $6u+7-3u=8+5u-11$

$3u+7=-3+5u$

$-3u \quad +3 \quad +3 \quad -3u$

$\frac{10}{2}=\frac{2u}{2}$

$5=u$

4. Tim is applying for a new job in retail sales.

   a. Road Runner Clothing and Accessories pays $100 a day plus 5% of his total sales. Write an expression to represent the total daily pay at Road Runner Clothing and Accessories.

S = sales
P = total pay.

$P = \$100 + 0.05s$

$P = \$100 + 0.05s$

   b. Blue Jag Boutique pays $75 a day plus 10% of his total sales. Write an expression to represent the total daily pay at Blue Jag Boutique.

$P = \$75 + 0.10s$

$P = \$75 + 0.10s$

   c. How much does Tim need to sell for each job to pay the same daily amount?

$$\$100 + 0.05s = \$75 + 0.10s$$

$$\frac{\$25}{0.05} = \frac{0.05s}{0.05}$$

$$\$500 = s$$

5. The sum of two consecutive integers is 503.

   a. Write an equation to represent the statement

$$x + x + 1 = 503$$

   b. Solve the equation to find the two integers.

$$2x + 1 = 503$$

$$\frac{2x}{2} = \frac{502}{2}$$

$$x = 251$$

$x = 251$ so the two integers are 251 & 252.

g. $-2(m+10)-7(4-2m)=0$

$-2m-20-28+14m=0$

$12m-48=0$

$\frac{12m}{12}=\frac{48}{12}$

$m=4$

h. $\frac{m}{6}-5=\frac{1}{2}m$

$\frac{m}{6}-5=\frac{m}{2}$ $+5$ $+5$

$\frac{m}{6}-\frac{m}{2}=\frac{m}{2}+5$ $-\frac{m}{2}$ $-\frac{m}{2}$

$6\left(\frac{m}{6}-\frac{m}{2}\right)=(5)6$

$m-3m=30$

$\frac{-2m}{-2}=\frac{30}{-2}$ $m=-15$

2. Transfer your solutions from #1e and #1g. Show a check for each solution.
   a. #1e Answer: $x=2$ b. #1g Answer: $m=4$

Check#1e: $5x+6=2(x+6)$

$5(2)+6=2(2+6)$

$10+6=2(8)$

$16=16$

Left side = right side ✓ ✓

Check #1g: $-2(m+10)-7(4-2m)=0$

$-2[(4)+10]-7[4-2(4)]=0$

$-2(14)-7(4-8)=0$

$-28-7(-4)=0$

$-28+28=0$

$0=0$

Left side = right side.

3. Four more than three times a number is 49.

   a. Write an equation to represent the statement.

$3x+4=49$

   b. Solve the equation.

$3x+4=49$

$-4\quad -4$

$\frac{3x}{3}=\frac{45}{3}$

$x=15$