Extended Warm-Up
9/14/17

One-Step Equations

Solve each equation.

1) $26 = 8 + v$

$-8 \quad -8$

$$18 = v$$

2) $3 + p = 8$

$-3 \quad -3$

$$P = 5$$

3) $15 + b = 23$

$-15 \quad -15$

$$b = 8$$

4) $-15 + n = -9$

$+15 \quad +15$

$$n = 6$$

5) $m + 4 = -12$

$-4 \quad -4$

$$m = -16$$

6) $x - 7 = 13$

$+7 \quad +7$

$$x = 20$$

7) $m - 9 = -13$
$$ +9 \quad +9$$
$$\boxed{m = -4}$$

8) $p - 6 = -5$
$$ +6 \quad +6$$
$$\boxed{P = 1}$$

9) $v - 15 = -27$
$$ +15 \quad +15$$
$$\boxed{V = -12}$$

10) $n + 16 = 9$
$$ -16 \quad -16$$
$$\boxed{n = -7}$$

11) $-104 = 8x$

$$\frac{}{8} \quad \frac{}{8}$$

$-13 = x$

12) $14b = -56$

$$\frac{}{14} \quad \frac{}{14}$$

$b = -4$

13) $\overset{18}{\bullet}\; -6 = \dfrac{b}{18} \bullet 18$

$-108 = b$

14) $10n = 40$

$$\frac{}{10} \quad \frac{}{10}$$

$n = 4$

Module 4: Equations & Inequalities.   9/14/17

Standard:

MFAEI1: Create and solve equations and inequalities in one variable and justify solutions.

Essential Question   9/14/17

- How can I solve one-step and two-step equations with one variable?

Objective:
- To master solving one-step and two-step equations with one variable.

Home Work Review: Solving Equations

1 - 14

Solve Equations with Fractions

Guided Practice 1 #1 - 10

Day 2 – Solving Equations with Fractions

Solve each equation by either multiplying by the reciprocal, multiplying a common denominator, or cross multiplying.

1. $\dfrac{-2}{7}x = 6 \cdot 7$

$-2x = 42$
$\dfrac{-2x}{-2} = \dfrac{42}{-2}$
$\boxed{x = -21}$

2. $\dfrac{-m}{3} = 2 \cdot 3$

$-m = 6$
$\dfrac{-m}{-1} = \dfrac{6}{-1}$
$\boxed{m = -6}$

3. $\dfrac{3}{4}t = \dfrac{2}{3}$

$\dfrac{3t}{4} = \dfrac{2}{3}$
$\dfrac{9t}{9} = \dfrac{8}{9}$
$\boxed{t = \dfrac{8}{9}}$

4. $\dfrac{-5}{6}x = \dfrac{3}{4}$

$\dfrac{-5x}{6} = \dfrac{3}{4}$
$-20x = 18$
$\dfrac{-20x}{-20} = \dfrac{18}{-20}$
$x = \dfrac{-18}{20}$
$\boxed{x = \dfrac{-9}{10}}$

$Lcm = 12$ $Lcm = 6$

5. $\dfrac{2x}{3} + 5 = 12$

6. $\dfrac{y}{6} + \dfrac{y}{4} = 5$

7. $\dfrac{x}{2} - \dfrac{x}{3} = 8$

$-5 \quad -5$

$\dfrac{2x}{3} = 7$

$12\left(\dfrac{y}{6} + \dfrac{y}{4}\right) = 5 \times 12$

$6\left(\dfrac{x}{2} - \dfrac{x}{3}\right) = 8 \cdot 6$

$3 \cdot \dfrac{2x}{3} = 7 \cdot 3$

$\dfrac{12y}{6} + \dfrac{12y}{4} = 60$

$\dfrac{6x}{2} - \dfrac{6x}{3} = 48$

$\dfrac{2x}{2} = \dfrac{21}{2}$

$2y + 3y = 60$

$3x - 2x = 48$

$\boxed{X = \dfrac{21}{2}}$

$\dfrac{5y}{5} = \dfrac{60}{5}$

$\boxed{X = 48}$

or $\boxed{X = 10.5}$

$\boxed{y = 12}$

8

③ $\dfrac{2x}{3} + 5 = 12$

multiplication

division

addition ①

② X

Solve

①

$$\dfrac{2x}{3} + \cancel{5} = 12 \\ - 5 \quad - 5$$

$$3 \cdot \dfrac{2x}{3} = 7 \cdot 3$$

$$\dfrac{2x}{2} = \dfrac{21}{2}$$

$$x = \dfrac{21}{2} \text{ or } 10.5$$

8. $\frac{3}{4}(2x+1)=2$

$$\left(\frac{6x}{4}+\frac{3}{4}\right)=2\times 4$$

$$\frac{24x}{4}+\frac{12}{4}=8$$

$$6x+3=8$$
$$\quad -3\quad -3$$
$$6x=5$$
$$\frac{6x}{6}=\frac{5}{6}$$
$$\boxed{x=\frac{5}{6}}$$

9. $\frac{2}{3}(3x+1)=5$

$$3\left(\frac{6x}{3}+\frac{2}{3}\right)=5\times 3$$

$$\frac{18x}{3}+\frac{6}{3}=15$$

$$6x+2=15$$
$$\quad -2\quad -2$$
$$6x=13$$
$$\frac{6x}{6}=\frac{13}{6}$$
$$\boxed{x=\frac{13}{6}}$$

10. $2y-\frac{3}{5}=\frac{1}{2}$

$$LCM=10$$

$$+\frac{3}{5}\quad +\frac{3}{5}$$

$$(2y)=\frac{1}{2}+\frac{3}{5}$$

$$2y=\frac{10}{2}+\frac{20}{5}$$

$$2y=5+6$$

$$2y=11$$

$$\frac{2y}{20}=\frac{11}{20}$$

$$\boxed{y=\frac{11}{20}}$$

Home Work Due Tomorrow!

Day 2 – Creating and Solving Equations Practice

Write an equation that can be used to model the following problem. Finally, use your equation to <u>SOLVE</u> the problem.

check

1. Find three consecutive integers whose sum is 171.

$$x + (x+1) + (x+2) = 171$$
$$3x + 3 = 171$$
$$3x = 168$$
$$x = 56 \quad ① \quad ② \ 57 \quad ③ \ 58$$

2. The sum of 3 consecutive even numbers add up to 1002. Find the three numbers.

$$1^{st} = x$$
$$2^{nd} = x+2$$
$$3^{rd} = x+4$$

$$x + (x+2) + (x+4) = 1002$$
$$3x + 6 = 1002$$

$$332$$
$$334$$
$$336$$
$$\overline{1002}$$

3. The sides of a triangular birdcage are consecutive integers. If the perimeter is 114 centimeters, what is the length of each side?

$$1^{st} = x$$
$$2^{nd} = x+1$$
$$3^{rd} = x+2$$

$$x + (x+1) + (x+2) = 114$$
$$3x + 3 = 114$$
$$\frac{111}{3} = 37, 38, 39$$

4. Alex has twice as much money as Jennifer. Jennifer has $6 less than Shannon. Together they have $54. How much money does each person have?

Shannon: x
Jennifer: $x-6$
Alex: $2(x-6)$

$$x + (x-6) + 2(x-6) = 54$$
$$x + x - 6 + 2x - 12 = 54$$
$$4x - 18 = 54$$
$$4x + 18$$
$$\frac{4x}{4} \mid \frac{72}{4} \qquad \boxed{x = 18}$$

5. Four friends are trading basketball cards. Bill gets 3 cards less than Isaac. Michael gets 7 more cards than Bill. Shawn gets twice as many as Michael. How many cards does each person get if there are a total of 74 cards?

$$18$$
$$12$$
$$24$$
$$\overline{54}$$