

Review: $7-6=1$ $6-7=-1$

1. Translate into a variable expression and simplify: "The difference between half of a number and 6 less than twice that number." $(\frac{1}{2}x) - (2x-6) = \frac{1}{2}x - 2x + 6 = -\frac{3}{2}x + 6$

2. An equation that is true for only some instances of the variable is called: conditional.

$$-\frac{3x}{2} + 6$$

3. An equation that is never true for any instances of the variable is called: contradiction.

4. An equation that is always true for any instance of the variable is called: identity.

5. One way to simplify an equation involving fractions is to get rid of the fractions by: multiplying by least common denominator

6. The solution set to a contradictory equation is:

\emptyset .

7. The solution set to an identity is: \mathbb{R} .

2.1
72.

$$\frac{2}{3}(15-6a) = \frac{5}{6}(12a+18)$$

$$\frac{\cancel{2}}{\cancel{3}} \cdot \frac{\overset{5}{\cancel{15}}}{1} - \frac{\cancel{2}}{\cancel{3}} \cdot \frac{\overset{2}{\cancel{6}a}}{1} = \frac{\cancel{5}}{\cancel{6}} \cdot \frac{\overset{2}{\cancel{12}a}}{1} + \frac{\cancel{5}}{\cancel{6}} \cdot \frac{\overset{3}{\cancel{18}}}{1}$$

$$10 - 4a = 10a + 15$$

$$10 - 15 = 10a + 4a$$

$$-5 = 14a$$

$$\boxed{-\frac{5}{14} = a}$$

$$69. \quad 5 \cdot \left(\frac{2a-9}{5} + 3 \right) = 2a \cdot 5$$

$$2a - 9 + 15 = 10a$$

$$6 = 8a$$

$$\boxed{\frac{3}{4}} = \frac{6}{8} = a$$

97.

$$\frac{4[(x-3)+2(1-x)]}{5} = (x+1) \cdot 5$$

$$4[x-3+2(1-x)] = 5x+5$$

$$4(x-3+2-2x) = 5x+5$$

$$4(-x-1) = 5x+5$$

$$-4x-4 = 5x+5$$

$$-4-5 = 5x+4x$$

$$\frac{-9}{9} = \frac{9x}{9}$$

$$\boxed{-1 = x}$$

$$93. \quad \frac{10}{\frac{3}{x}} - 5 = 4x$$

$$\frac{10}{1} \cdot \frac{x}{3} - 5 = 4x$$

$$\frac{3}{1} \cdot \left(\frac{10x}{3} - 5 \right) = (4x) \cdot 3$$

$$10x - 15 = 12x$$

$$-15 = 2x$$

$$\boxed{\frac{-15}{2} = x}$$

2.2 Coin, Stamp, & Integer Problems

4. 22 coins valued @ \$4.45
dimes & quarters,
how many quarters?

coin	# coins	value per coin	total value
dimes	$22-x$	\$0.10	$0.1(22-x)$
quarters	x	\$0.25	$0.25x$

$$0.1(22-x) + 0.25x = 4.45$$

$$2.2 - 0.1x + 0.25x = 4.45$$

$$0.15x = 2.25$$

$$15x = 225$$

$$\frac{15}{15}$$

$$x = \boxed{15 \text{ quarters}}$$

14. stamps	# of stamps	value per stamp	total value
3¢	$5x$	0.03	$0.03(5x)$
12¢	x	0.12	$0.12x$
15¢	$x-4$	0.15	$0.15(x-4)$

$$3.18 = 0.03(5x) + 0.12x + 0.15(x-4)$$

$$3.18 = 0.15x + 0.12x + 0.15x - 0.6$$

$$3.78 = 0.42x$$

$$\frac{378}{42} = \frac{42x}{42}$$

$$42 \overline{) 378} \begin{matrix} 9 \\ \end{matrix}$$

$$9 = x - 4$$

5 15¢ stamps

20. one integer is $x+4$ 4 more than another integer.
Their sum is 26. Find them.

$$(x+4) + (x) = 26$$

$$2x+4=26$$

$$2x=22$$

$$x = 11, 15$$

22. first x
second $2x$
third $2x-3$
sum is 42

$$x + 2x + 2x - 3 = 42$$

$$5x = 45$$

$$x = 9, 18, 15$$

consecutive even or odd integers: $x, x+2, x+4,$
e.g. $2, 4, 6, \dots$ $1, 3, 5, \dots$ $x+6, \dots$

27.

$x, x+2, x+4$ odd

$$3(x+2) = 7 + x + x+4$$

$$3x+6 = 11+2x$$

$$x = (5, 7, 9)$$

26. $x, x+2, x+4$ even

$$2(x + x+4) = 21 + x + 2$$

$$2(2x+4) = 23 + x$$

$$4x + 8 = 23 + x$$

$$3x = 15$$

$$x = \frac{15}{3} = 5, 7, 9$$

no solution!

2.2
odd #'s quiz tomorrow
test wednesday