2.2 Solve Equations

PRACTICE

Directions: For each solution to the equations below justify each step with the given property.

1) 2 + m + 7 = -11 + 5m

2 + 7 + m = -11 + 5m	Commutative Prop
9 + m = -11 + 5m	Combine Like Terms
20 + m = 5m	Additive Prop of Eq
20 = 4m	Subtraction Prop of Eq
5 = m	Division Prop of Eq
{5}	

2) 7 + 3v = -8 + 6v

7 – 3v = -8	Subtraction Prop of Eq
-3v = -15	Subtraction Prop of Eq
v = 5	Division Prop of Eq
{5}	

Directions: Solve each equation. Put your solution into set notation.

3) 15 + n – 6n = 7n + 3n

$15 - 5n = 10n$
$+5n \quad +5n$
$\frac{15}{15} = \frac{15n}{15}$
$1 = n$
$\{1\}$

4) $\frac{-9+n}{13} + 10 = 8$

$-10 \quad -10$
$13\left(\frac{-9+n}{13}\right) = -2(13)$
$-9 + n = -26$
$+9 \quad +9$
$n = -17$
$\{-17\}$

5) 240 = -8(-5v + 5)

$240 = 40v - 40$
$+40 \quad +40$
$\frac{280}{40} = \frac{40v}{40}$
$7 = v$
$\{7\}$

6) –(8 +7x) – 8(1 + x) = 74

$-8 - 7x - 8 - 8x = 74$
$-8 - 8 \quad -7x - 8x = 74$
$-16 - 15x = 74$
$+16 \quad +16$
$\frac{-15x}{-15} = \frac{90}{-15}$
$x = -6$
$\{-6\}$

7) $\frac{1+3a}{4} = 7(4)$

$1+3a = 28$

$-1 \qquad -1$

$\frac{3a}{3} = \frac{27}{3}$

$a = 9$

$\{9\}$

8) 8 = -6(3n − 1) + 2(9n + 1)

$8 = -18n + 6 + 18n + 2$

$8 = -18n + 18n + 6 + 2$

$8 = 0 + 8$

$8 = 8$

All Real #s

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Directions: Simplify each expression.

9) $\frac{2}{3}(6x - 21)$

$\boxed{4x - 14}$

10) 4 − 3(2 − x)

$4 - 6 + 3x$

$\boxed{-2 + 3x}$

11) 3(2x + 7) − 4(x − 2)

$6x + 21 - 4x + 8$

$6x - 4x + 21 + 8$

$\boxed{2x + 29}$