A.REI.B.3: Solving Linear Equations 1b

1   The solution to $3(x - 8) + 4x = 8x + 4$ is

2   The solution to $-2(1 - 4x) = 3x + 8$ is

3   What is the solution to $2 + 3(2a + 1) = 3(a + 2)$?

4   An equation is given below.
$$4(x - 7) = 0.3(x + 2) + 2.11$$
The solution to the equation is

5   The value of x that satisfies the equation
$\frac{4}{3} = \frac{x + 10}{15}$ is

6   What is the value of x in the equation
$\frac{5(2x - 4)}{3} + 9 = 14$?

7   What is the value of x in the equation
$\frac{x - 2}{3} + \frac{1}{6} = \frac{5}{6}$?

8   Which value of x makes $\frac{x - 3}{4} + \frac{2}{3} = \frac{17}{12}$ true?

9   Which value of x satisfies the equation
$\frac{7}{3}\left(x + \frac{9}{28}\right) = 20$?

10   Which value of x satisfies the equation
$\frac{5}{6}\left(\frac{3}{8} - x\right) = 16$?

11   The solution to $\frac{2}{3}(3 - 2x) = \frac{3}{4}$ is

12   The value of x which makes
$\frac{2}{3}\left(\frac{1}{4}x - 2\right) = \frac{1}{5}\left(\frac{4}{3}x - 1\right)$ true is

13   What is the solution to the equation
$\frac{3}{5}\left(x + \frac{4}{3}\right) = 1.04$?

14   Which of the equations below have the same solution?
I. $10(x - 5) = -15$
II. $4 + 2(x - 2) = 9$
III. $\frac{1}{3}x = \frac{3}{2}$

15   Solve the equation algebraically for x:
$-2.4(x + 1.4) = 6.8x - 22.68$

16   Solve the equation below algebraically for the exact value of x.
$$6 - \frac{2}{3}(x + 5) = 4x$$

17   Solve algebraically for x:
$$-\frac{2}{3}(x + 12) + \frac{2}{3}x = -\frac{5}{4}x + 2$$

A.REI.B.3: Solving Linear Equations 1b
Answer Section

1 ANS:
   -28

$$3x - 24 + 4x = 8x + 4$$
$$7x - 24 = 8x + 4$$
$$-28 = x$$

   REF: 062106ai

2 ANS:
   2

$$-2 + 8x = 3x + 8$$
$$5x = 10$$
$$x = 2$$

   REF: 081804ai

3 ANS:
   $\dfrac{1}{3}$

$$2 + 3(2a + 1) = 3(a + 2)$$
$$2 + 6a + 3 = 3a + 6$$
$$3a + 5 = 6$$
$$3a = 1$$
$$a = \dfrac{1}{3}$$

   REF: 012307ai

4 ANS:
   8.3

$$4(x - 7) = 0.3(x + 2) + 2.11$$
$$4x - 28 = 0.3x + 0.6 + 2.11$$
$$3.7x - 28 = 2.71$$
$$3.7x = 30.71$$
$$x = 8.3$$

   REF: 061719ai

5 ANS:
  10
$$\frac{4}{3} = \frac{x+10}{15}$$
  $3x + 30 = 60$
  $x = 10$

REF: 081904ai

6 ANS:
  3.5
$$\frac{5(2x-4)}{3} = 5$$
  $10x - 20 = 15$
  $10x = 35$
  $x = 3.5$

REF: 082304ai

7 ANS:
  4
$$\frac{x-2}{3} = \frac{4}{6}$$
  $6x - 12 = 12$
  $6x = 24$
  $x = 4$

REF: 081420ai

8 ANS:
  6
$$\frac{x-3}{4} + \frac{8}{12} = \frac{17}{12}$$
$$\frac{x-3}{4} = \frac{9}{12}$$
$$\frac{x-3}{4} = \frac{3}{4}$$
  $x - 3 = 3$
  $x = 6$

REF: 012005ai

9 ANS:

8.25

$$\frac{7}{3}\left(x + \frac{9}{28}\right) = 20$$

$$\frac{7}{3}x + \frac{3}{4} = \frac{80}{4}$$

$$\frac{7}{3}x = \frac{77}{4}$$

$$x = \frac{33}{4} = 8.25$$

REF: 061405ai

10 ANS:

−18.825

$$6\left(\frac{5}{6}\left(\frac{3}{8} - x\right) = 16\right)$$

$$8\left(5\left(\frac{3}{8} - x\right) = 96\right)$$

$$15 - 40x = 768$$

$$-40x = 753$$

$$x = -18.825$$

REF: 081713ai

11 ANS:

$$\frac{15}{16}$$

$$\frac{3}{2}\left(\frac{2}{3}(3 - 2x) = \frac{3}{4}\right)$$

$$3 - 2x = \frac{9}{8}$$

$$24 - 16x = 9$$

$$15 = 16x$$

$$x = \frac{15}{16}$$

REF: 012416ai

12 ANS:

$-11.\overline{3}$

$$\frac{2}{3}\left(\frac{1}{4}x - 2\right) = \frac{1}{5}\left(\frac{4}{3}x - 1\right)$$

$$10(3x - 24) = 3(16x - 12)$$

$$30x - 240 = 48x - 36$$

$$-204 = 18x$$

$$x = -11.\overline{3}$$

REF: 011822ai

13 ANS:

0.4

$$\frac{3}{5}\left(x + \frac{4}{3}\right) = 1.04$$

$$3\left(x + \frac{4}{3}\right) = 5.2$$

$$3x + 4 = 5.2$$

$$3x = 1.2$$

$$x = 0.4$$

REF: 011905ai

14 ANS:

II and III, only

$$10(x - 5) = -15 \quad 4 + 2(x - 2) = 9 \quad \frac{1}{3}x = \frac{3}{2}$$

$$10x - 50 = -15 \quad 4 + 2x - 4 = 9$$

$$10x = 35 \qquad 2x = 9 \qquad x = \frac{9}{2}$$

$$x = \frac{7}{2} \qquad x = \frac{9}{2}$$

REF: 082217ai

15 ANS:

$$-2.4(x + 1.4) = 6.8x - 22.68$$

$$-2.4x - 3.36 = 6.8x - 22.68$$

$$19.32 = 9.2x$$

$$2.1 = x$$

REF: 062325ai

4

16 ANS:

$$18 - 2(x + 5) = 12x$$

$$18 - 2x - 10 = 12x$$

$$8 = 14x$$

$$x = \frac{8}{14} = \frac{4}{7}$$

REF: 061830ai

17 ANS:

$$-12\left(-\frac{2}{3}(x + 12) + \frac{2}{3}x = -\frac{5}{4}x + 2\right)$$

$$8(x + 12) - 8x = 15x - 24$$

$$8x + 96 - 8x = 15x - 24$$

$$120 = 15x$$

$$8 = x$$

REF: 061925ai