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

1 The solution to $3(x-8)+4x=8x+4$ is
1) 12
2) 28
3) −12
4) −28

2 The solution to $-2(1-4x)=3x+8$ is
1) $\frac{6}{11}$
2) 2
3) $-\frac{10}{7}$
4) −2

3 What is the solution to $2+3(2a+1)=3(a+2)$?
1) $\frac{1}{7}$
2) $\frac{1}{3}$
3) $-\frac{3}{7}$
4) $-\frac{1}{3}$

4 An equation is given below.
$$4(x-7)=0.3(x+2)+2.11$$
The solution to the equation is
1) 8.3
2) 8.7
3) 3
4) -3

5 The value of x that satisfies the equation $\frac{4}{3}=\frac{x+10}{15}$ is
1) −6
2) 5
3) 10
4) 30

6 The solution to $\frac{4(x-5)}{3}+2=14$ is
1) 15
2) 14
3) 6
4) 4

7 What is the value of x in the equation $\frac{5(2x-4)}{3}+9=14$?
1) 1.9
2) 3.5
3) 5.3
4) 8.9

8 What is the value of x in the equation $\frac{x-2}{3}+\frac{1}{6}=\frac{5}{6}$?
1) 4
2) 6
3) 8
4) 11

9 Which value of x makes $\frac{x-3}{4}+\frac{2}{3}=\frac{17}{12}$ true?
1) 8
2) 6
3) 0
4) 4

10 Which value of x satisfies the equation $\frac{7}{3}\left(x+\frac{9}{28}\right)=20$?
1) 8.25
2) 8.89
3) 19.25
4) 44.92

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

1) -19.575
2) -18.825
3) -16.3125
4) -15.6875

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

1) $-\frac{11}{8}$
2) $\frac{5}{8}$
3) $-\frac{33}{16}$
4) $\frac{15}{16}$

13 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

1) -10
2) -2
3) $-9.\overline{09}$
4) $-11.\overline{3}$

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

1) $3.0\overline{6}$
2) 0.4
3) $-0.4\overline{8}$
4) $-0.709\overline{3}$

15 Which of the equations below have the same solution?

I. $10(x-5)=-15$
II. $4+2(x-2)=9$
III. $\frac{1}{3}x=\frac{3}{2}$

1) I and II, only
2) I and III, only
3) II and III, only
4) I, II, and III

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

17 Solve the equation below algebraically for the exact value of x.

$$6-\frac{2}{3}(x+5)=4x$$

18 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 1
Answer Section

1 ANS: 4

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

$7x - 24 = 8x + 4$

$-28 = x$

REF: 062106ai

2 ANS: 2

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

$5x = 10$

$x = 2$

REF: 081804ai

3 ANS: 2

$2 + 3(2a + 1) = 3(a + 2)$

$2 + 6a + 3 = 3a + 6$

$3a + 5 = 6$

$3a = 1$

$a = \frac{1}{3}$

REF: 012307ai

4 ANS: 1

$4(x - 7) = 0.3(x + 2) + 2.11$

$4x - 28 = 0.3x + 0.6 + 2.11$

$3.7x - 28 = 2.71$

$3.7x = 30.71$

$x = 8.3$

REF: 061719ai

5 ANS: 3

$\frac{4}{3} = \frac{x + 10}{15}$

$3x + 30 = 60$

$x = 10$

REF: 081904ai

6 ANS: 2

$$\frac{4(x-5)}{3} = 12$$

$$4x - 20 = 36$$

$$4x = 56$$

$$x = 14$$

REF: 062406ai

7 ANS: 2

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

$$10x - 20 = 15$$

$$10x = 35$$

$$x = 3.5$$

REF: 082304ai

8 ANS: 1

$$\frac{x-2}{3} = \frac{4}{6}$$

$$6x - 12 = 12$$

$$6x = 24$$

$$x = 4$$

REF: 081420ai

9 ANS: 2

$$\frac{x-3}{4} + \frac{8}{12} = \frac{17}{12}$$

$$\frac{x-3}{4} = \frac{9}{12}$$

$$\frac{x-3}{4} = \frac{3}{4}$$

$$x - 3 = 3$$

$$x = 6$$

REF: 012005ai

10 ANS: 1

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

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

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

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

REF: 061405ai

11 ANS: 2

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

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

$$15-40x=768$$

$$-40x=753$$

$$x=-18.825$$

REF: 081713ai

12 ANS: 4

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

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

$$24-16x=9$$

$$15=16x$$

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

REF: 012416ai

13 ANS: 4

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

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

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

$$-204=18x$$

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

REF: 011822ai

14 ANS: 2

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

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

$$3x+4=5.2$$

$$3x=1.2$$

$$x=0.4$$

REF: 011905ai

15 ANS: 3

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

$10x-50=-15$ $4+2x-4=9$ $x=\frac{9}{2}$

$10x=35$ $2x=9$

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

REF: 082217ai

16 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

17 ANS:

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

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

$$8 = 14x$$

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

REF: 061830ai

18 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