

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

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

- 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) $3.\overline{06}$
- 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 algebraically for x : $0.05(x - 3) = 0.35x - 7.5$

17 Solve the equation algebraically for x :

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

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

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

19 Solve algebraically for x :

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

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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

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

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

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

$$-204 = 18x$$

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

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

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

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

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

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

REF: 082217ai

16 ANS:

$$0.05(x - 3) = 0.35x - 7.5$$

$$x - 3 = 7x - 150$$

$$147 = 6x$$

$$24.5 = x$$

REF: 082428ai

17 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

18 ANS:

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

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

$$8 = 14x$$

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

REF: 061830ai

19 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