

**A.A.22: Solving Equations 2: Solve all types of linear equations in one variable**

- 1 Which value of  $p$  is the solution of  $5p - 1 = 2p + 20$ ?
- 2 The solution of the equation  $5 - 2x = -4x - 7$  is
- 3 Which value of  $x$  is the solution of the equation  $2(x - 4) + 7 = 3$ ?
- 4 What is the value of  $x$  in the equation  $2(x - 4) = 4(2x + 1)$ ?
- 5 If  $12x = 4(x + 5)$ , then  $x$  equals
- 6 Solve for  $x$ :  $15x - 3(3x + 4) = 6$
- 7 What is the solution of the equation  $3y - 5y + 10 = 36$ ?
- 8 If  $2x + 5 = -25$  and  $-3m - 6 = 48$ , what is the product of  $x$  and  $m$ ?
- 9 If  $2(x + 3) = x + 10$ , then  $x$  equals
- 10 If  $3(x - 2) = 2x + 6$ , the value of  $x$  is
- 11 What is the value of  $x$  in the equation  $2(x - 3) + 1 = 19$ ?
- 12 What is the solution for the equation  $x + 1 = x + 2$ ?
- 13 If  $-2x + 3 = 7$  and  $3x + 1 = 5 + y$ , the value of  $y$  is
- 14 What is the value of  $x$  in the equation  $5(2x - 7) = 15x - 10$ ?
- 15 What is the value of  $x$  in the equation  $13x - 2(x + 4) = 8x + 1$ ?
- 16 What is the value of  $p$  in the equation  $2(3p - 4) = 10$ ?

- 17 What is the value of  $n$  in the equation  
 $3n - 8 = 32 - n$ ?

- 18 What is the value of  $x$  in the equation  
 $6(x - 2) = 36 - 10x$ ?

- 19 What is the value of  $p$  in the equation  
 $8p + 2 = 4p - 10$ ?

- 20 What is the value of  $x$  in the equation  $5 - 3x = -7$ ?

- 21 If  $3(x + 2) - 2(x + 1) = 8$ , the value of  $x$  is

- 22 What is the value of  $m$  in the equation  
 $2m - (m + 1) = 0$

- 23 Debbie solved the linear equation  $3(x + 4) - 2 = 16$   
as follows:

[Line 1]  $3(x + 4) - 2 = 16$

[Line 2]  $3(x + 4) = 18$

[Line 3]  $3x + 4 = 18$

[Line 4]  $3x = 14$

[Line 5]  $x = 4\frac{2}{3}$

She made an error between lines

- 24 Solve for  $x$ :  $5(x - 2) = 2(10 + x)$

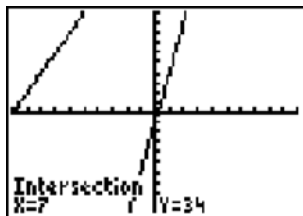
- 25 Solve for  $g$ :  $3 + 2g = 5g - 9$

- 26 Solve algebraically for  $x$ :  
 $3(x + 1) - 5x = 12 - (6x - 7)$

# A.A.22: Solving Equations 2: Solve all types of linear equations in one variable Answer Section

1 ANS:

7



$$5p - 1 = 2p + 20$$

$$3p = 21$$

$$p = 7$$

REF: 080801ia

2 ANS:

-6

$$5 - 2x = -4x - 7$$

$$2x = -12$$

$$x = -6$$

REF: 011305ia

3 ANS:

2

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

$$2x - 8 = -4$$

$$2x = 4$$

$$x = 2$$

REF: 061425ia

4 ANS:

-2

$$2(x - 4) = 4(2x + 1)$$

$$2x - 8 = 8x + 4$$

$$-12 = 6x$$

$$-2 = x$$

REF: 011106ia

5 ANS:

$$2.5$$

$$12x = 4(x + 5)$$

$$12x = 4x + 20$$

$$8x = 20$$

$$x = \frac{20}{8} = 2.5$$

REF: spring9802a

6 ANS:

$$3$$

$$15x - 3(3x + 4) = 6$$

$$15x - 9x - 12 = 6$$

$$6x = 18$$

$$x = 3$$

REF: 080015a

7 ANS:

$$-13$$

$$3y - 5y + 10 = 36$$

$$-2y = 26$$

$$y = -13$$

REF: 060214a

8 ANS:

$$270$$

$$2x + 5 = -25 \quad -3m - 6 = 48$$

$$2x = -30 \quad -3m = 54 \quad \text{The product of } x \text{ and } m \text{ is } 270.$$

$$x = -15 \quad m = -18$$

REF: 080219a

9 ANS:

$$4$$

$$2(x + 3) = x + 10$$

$$2x + 6 = x + 10$$

$$x = 4$$

REF: 010401a

10 ANS:

12

$$3(x-2) = 2x+6$$

$$3x-6 = 2x+6$$

$$x = 12$$

REF: 060404a

11 ANS:

12

$$2(x-3)+1=19$$

$$2x-6=18$$

$$2x=24$$

$$x=12$$

REF: 010904a

12 ANS:

There is no solution.

$$x+1 = x+2$$

$$1 \neq 2$$

REF: 010908a

13 ANS:

-10

$$-2x+3=7 \quad 3(-2)+1=5+y$$

$$-2x=4 \quad -5=5+y$$

$$x=-2 \quad y=-10$$

REF: 060519a

14 ANS:

-5

$$5(2x-7)=15x-10$$

$$10x-35=15x-10$$

$$-25=5x$$

$$x=-5$$

REF: 010601a

15 ANS:

3

$$13x - 2(x + 4) = 8x + 1$$

$$13x - 2x - 8 = 8x + 1$$

$$11x = 8x + 9$$

$$3x = 9$$

$$x = 3$$

REF: 060602a

16 ANS:

3

$$2(3p - 4) = 10$$

$$6p - 8 = 10$$

$$6p = 18$$

$$p = 3$$

REF: 080602a

17 ANS:

10

$$3n - 8 = 32 - n$$

$$4n = 40$$

$$n = 10$$

REF: 010705a

18 ANS:

3

$$6(x - 2) = 36 - 10x$$

$$6x - 12 = 36 - 10x$$

$$16x = 48$$

$$x = 3$$

REF: 060702a

19 ANS:

-3

$$8p + 2 = 4p - 10$$

$$4p = -12$$

$$p = -3$$

REF: 010807a

20 ANS:

$$\begin{aligned}
 4 \\
 5 - 3x &= -7 \\
 -3x &= -12 \\
 x &= 4
 \end{aligned}$$

REF: 060810a

21 ANS:

$$\begin{aligned}
 4 \\
 3(x + 2) - 2(x + 1) &= 8 \\
 3x + 6 - 2x - 2 &= 8 \\
 x + 4 &= 8 \\
 x &= 4
 \end{aligned}$$

REF: 060813a

22 ANS:

$$\begin{aligned}
 1 \\
 2m - (m + 1) &= 0 \\
 2m - m - 1 &= 0 \\
 m &= 1
 \end{aligned}$$

REF: 080812a

23 ANS:

2 and 3

Debbie failed to distribute the 3 properly.

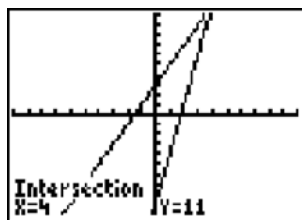
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24 ANS:

$$\begin{aligned}
 5(x - 2) &= 2(10 + x) \\
 5x - 10 &= 20 + 2x \\
 10. \quad 3x &= 30 \\
 x &= 10
 \end{aligned}$$

REF: 080731a

25 ANS:



$$4. \ 3 + 2g = 5g - 9$$

$$12 = 3g$$

$$g = 4$$

REF: fall0732ia

26 ANS:

$$4. \ 3(x + 1) - 5x = 12 - (6x - 7)$$

$$3x + 3 - 5x = 12 - 6x + 7$$

$$-2x + 3 = -6x + 19$$

$$4x = 16$$

$$x = 4$$

REF: 061238ia