Algebra Equations 3a - Multi-Step Equations

Short Answer

1. $12x + 17 = 41$
2. $7a + 14 = -28$
3. $4a - 22 = 6$
4. $4x - 11 = -7$
5. $-6y + 19 = 67$
6. $-9r + 17 = -19$
7. $-8a - 10 = 6$
8. $-8y - 19 = -3$
9. $3x + 9x = 108$
10. $3m + 7m = -90$
11. $10a - 2a = 80$
12. $7a - 3a = -16$
13. $-12a + 10a = 2$
14. $-3r + 7r = -8$
15. $-3y - 4y = 21$
16. $-4y - 3y = -63$

Algebra Equations 3a - Multi-Step Equations
Answer Section

SHORT ANSWER

1. ANS: 2

$$\begin{aligned} 12x + 17 &= 41 \\ -17 &\quad -17 \\ \hline 12x &= 24 \\ \frac{12x}{12} &= \frac{24}{12} \\ x &= 2 \end{aligned}$$

2. ANS: –6

$$\begin{aligned} 7a + 14 &= -28 \\ -14 &\quad -14 \\ \hline 7a &= -42 \\ \frac{7a}{7} &= \frac{-42}{7} \\ a &= -6 \end{aligned}$$

3. ANS: 7

$$\begin{aligned} 4a - 22 &= 6 \\ +22 &\quad +22 \\ \hline 4a &= 28 \\ \frac{4a}{4} &= \frac{28}{4} \\ a &= 7 \end{aligned}$$

4. ANS: 1

$$\begin{aligned} 4x - 11 &= -7 \\ +11 &\quad +11 \\ \hline 4x &= 4 \\ \frac{4x}{4} &= \frac{4}{4} \\ x &= 1 \end{aligned}$$

5. ANS: –8

$$\begin{aligned} -6y + 19 &= 67 \\ -19 &\quad -19 \\ \hline -6y &= 48 \\ \frac{-6y}{-6} &= \frac{48}{-6} \\ y &= -8 \end{aligned}$$

6. ANS: 4

$$\begin{aligned} -9r + 17 &= -19 \\ -17 &\quad -17 \\ \hline -9r &= -36 \\ \frac{-9r}{-9} &= \frac{-36}{-9} \\ r &= 4 \end{aligned}$$

7.A f 7. ANS: –2

$$\begin{aligned} -8a - 10 &= 6 \\ +10 &\quad +10 \\ \hline -8a &= 16 \\ \frac{-8a}{-8} &= \frac{16}{-8} \\ a &= -2 \end{aligned}$$

8. ANS: –2

$$\begin{aligned} -8y - 19 &= -3 \\ +19 &\quad +19 \\ \hline -8y &= 16 \\ \frac{-8y}{-8} &= \frac{16}{-8} \\ y &= -2 \end{aligned}$$

9. ANS: 9

$$\begin{aligned} 3x + 9x &= 108 \\ 12x &= 108 \\ \frac{12x}{12} &= \frac{108}{12} \\ x &= 9 \end{aligned}$$

10. ANS: –9

$$\begin{aligned} 3m + 7m &= -90 \\ 10m &= -90 \\ \frac{10m}{10} &= \frac{-90}{10} \\ m &= -9 \end{aligned}$$

11. ANS: 10

$$\begin{aligned} 10a - 2a &= 80 \\ 8a &= 80 \\ \frac{8a}{8} &= \frac{80}{8} \\ a &= 10 \end{aligned}$$

12. ANS: –4

$$\begin{aligned} 7a - 3a &= -16 \\ 4a &\quad -16 \\ \frac{4a}{4} &= \frac{-16}{4} \\ a &= -4 \end{aligned}$$

13. ANS: –1

$$\begin{aligned} -12a + 10a &= 2 \\ -2a &= 2 \\ \frac{-2a}{-2} &= \frac{2}{-2} \\ a &= -1 \end{aligned}$$

14. ANS: –2

$$\begin{aligned} -3r + 7r &= -8 \\ 4r &= -8 \\ \frac{4r}{4} &= \frac{-8}{4} \\ r &= -2 \end{aligned}$$

15. ANS: –3

$$\begin{aligned} -3y - 4y &= 21 \\ -7y &= 21 \\ \frac{-7y}{-7} &= \frac{21}{-7} \\ y &= -3 \end{aligned}$$

16. ANS: 9

$$\begin{aligned} -4y - 3y &= -63 \\ -7y &= -63 \\ \frac{-7y}{-7} &= \frac{-63}{-7} \\ y &= 9 \end{aligned}$$