

Exercise 4.3

(1)

$$\begin{array}{r}
 1) \quad 3x - 2 = 10 \\
 \quad +2 \quad +2 \\
 \hline
 3x = 12 \\
 \frac{3}{3} \quad \frac{3}{3} \\
 \hline
 \boxed{x = 4}
 \end{array}$$

$$\begin{array}{l}
 \text{Check: } 3(4) - 2 = 10 \\
 12 - 2 = 10 \\
 10 = 10 \checkmark
 \end{array}$$

$$\begin{array}{r}
 7) \quad 7 - 2x = -15 \\
 \quad -7 \quad -7 \\
 \hline
 -2x = -22 \\
 \frac{-2}{-2} \quad \frac{-22}{-2} \\
 \hline
 \boxed{x = 11}
 \end{array}$$

$$\begin{array}{l}
 \text{Check:} \\
 7 - 2(11) = -15 \\
 7 - 22 = -15 \\
 -15 = -15 \checkmark
 \end{array}$$

$$\begin{array}{r}
 2) \quad 22 = 5x + 7 \\
 \quad -7 \quad -7 \\
 \hline
 15 = 5x \\
 \frac{15}{5} \quad \frac{5}{5} \\
 \hline
 \boxed{3 = x}
 \end{array}$$

$$\begin{array}{l}
 \text{Check:} \\
 22 = 5(3) + 7 \\
 22 = 15 + 7 \\
 22 = 22 \checkmark
 \end{array}$$

$$\begin{array}{r}
 8) \quad 4 - 3x = 22 \\
 \quad -4 \quad -4 \\
 \hline
 -3x = 18 \\
 \frac{-3}{-3} \quad \frac{18}{-3} \\
 \hline
 \boxed{x = -6}
 \end{array}$$

$$\begin{array}{l}
 \text{Check:} \\
 4 - 3(-6) = 22 \\
 4 + 18 = 22 \\
 22 = 22 \checkmark
 \end{array}$$

$$\begin{array}{r}
 3) \quad 7x - 2 = 40 \\
 \quad +2 \quad +2 \\
 \hline
 7x = 42 \\
 \frac{7}{7} \quad \frac{42}{7} \\
 \hline
 \boxed{x = 6}
 \end{array}$$

$$\begin{array}{l}
 \text{Check:} \\
 7(6) - 2 = 40 \\
 42 - 2 = 40 \\
 40 = 40 \checkmark
 \end{array}$$

$$\begin{array}{r}
 9) \quad 3 - 8x = -53 \\
 \quad -3 \quad -3 \\
 \hline
 -8x = -56 \\
 \frac{-8}{-8} \quad \frac{-56}{-8} \\
 \hline
 \boxed{x = 7}
 \end{array}$$

$$\begin{array}{l}
 \text{Check:} \\
 3 - 8(7) = -53 \\
 3 - 56 = -53 \\
 -53 = -53 \checkmark
 \end{array}$$

$$\begin{array}{r}
 4) \quad -50 = 8x - 10 \\
 \quad +10 \quad +10 \\
 \hline
 -40 = 8x \\
 \frac{-40}{8} \quad \frac{8}{8} \\
 \hline
 \boxed{-5 = x}
 \end{array}$$

$$\begin{array}{l}
 \text{Check:} \\
 -50 = (8)(-5) - 10 \\
 -50 = -40 - 10 \\
 -50 = -50 \checkmark
 \end{array}$$

$$\begin{array}{r}
 10) \quad 6(x - 3) = -54 \\
 \quad 6x - 18 = -54 \\
 \quad +18 \quad +18 \\
 \hline
 6x = -36 \\
 \frac{6}{6} \quad \frac{-36}{6} \\
 \hline
 \boxed{x = -6}
 \end{array}$$

$$\begin{array}{l}
 \text{Check:} \\
 6(-6 - 3) = -54 \\
 6(-9) = -54 \\
 -54 = -54 \checkmark
 \end{array}$$

$$\begin{array}{r}
 5) \quad -4x + 6 = -6 \\
 \quad -6 \quad -6 \\
 \hline
 -4x = -12 \\
 \frac{-4}{-4} \quad \frac{-12}{-4} \\
 \hline
 \boxed{x = 3}
 \end{array}$$

$$\begin{array}{l}
 \text{Check:} \\
 -4(3) + 6 = -6 \\
 -12 + 6 = -6 \\
 -6 = -6 \checkmark
 \end{array}$$

$$\begin{array}{r}
 11) \quad 12 = 4(x - 1) \\
 \quad 12 = 4x - 4 \\
 \quad +4 \quad +4 \\
 \hline
 16 = 4x \\
 \frac{16}{4} \quad \frac{4}{4} \\
 \hline
 \boxed{4 = x}
 \end{array}$$

$$\begin{array}{l}
 \text{Check:} \\
 12 = 4(4 - 1) \\
 12 = 4(3) \\
 12 = 12 \checkmark
 \end{array}$$

$$\begin{array}{r}
 6) \quad -41 = 9x - 5 \\
 \quad +5 \quad +5 \\
 \hline
 -36 = 9x \\
 \frac{-36}{9} \quad \frac{9}{9} \\
 \hline
 \boxed{-4 = x}
 \end{array}$$

$$\begin{array}{l}
 \text{Check:} \\
 -41 = 9(-4) - 5 \\
 -41 = -36 - 5 \\
 -41 = -41 \checkmark
 \end{array}$$

Exercise 4.3

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$$\begin{aligned} 12) \quad 3(2x-5) &= 15 \\ 6x-15 &= 15 \\ +15 \quad +15 & \\ \hline 6x &= 30 \\ \frac{6x}{6} &= \frac{30}{6} \end{aligned}$$

$$\boxed{x=5}$$

$$\begin{aligned} \text{Check} \\ 3(2(5)-5) &= 15 \\ 3(10-5) &= 15 \\ 3(5) &= 15 \\ 15 &= 15 \checkmark \end{aligned}$$

$$\begin{aligned} 17) \quad 5(x-2) + 3x - 7 &= 11 - (-4) \\ 5x-10 + 3x - 7 &= 11+4 \\ 8x-17 &= 15 \\ +17 \quad +17 & \end{aligned}$$

$$\frac{8x}{8} = \frac{32}{8}$$

$$\boxed{x=4}$$

$$\begin{aligned} 13) \quad 5x - 3x + 2 &= 18 \\ 2x + 2 &= 18 \\ -2 \quad -2 & \end{aligned}$$

$$\frac{2x}{2} = \frac{16}{2}$$

$$\boxed{x=8}$$

$$\begin{aligned} \text{Check:} \\ 5(8) - 3(8) + 2 &= 18 \\ 40 - 24 + 2 &= 18 \\ 16 + 2 &= 18 \\ 18 &= 18 \checkmark \end{aligned}$$

$$14) \quad -7x - 2x + 7 = -11 \quad \text{Check:}$$

$$\begin{aligned} -9x + 7 &= -11 \\ -7 \quad -7 & \end{aligned}$$

$$\frac{-9x}{-9} = \frac{-18}{-9}$$

$$\boxed{x=2}$$

$$\begin{aligned} -7(2) - 2(2) + 7 &= -11 \\ -14 - 4 + 7 &= -11 \\ -18 + 7 &= -11 \\ -11 &= -11 \checkmark \end{aligned}$$

$$15) \quad 5 - (-2) = -3x - 5x - 9 \quad \text{Check:}$$

$$5 + 2 = -8x - 9$$

$$\begin{aligned} 7 &= -8x - 9 \\ +9 \quad +9 & \end{aligned}$$

$$\frac{16}{-8} = \frac{-8x}{-8}$$

$$\boxed{-2=x}$$

$$\begin{aligned} 5 - (-2) &= -3(-2) - 5(-2) - 9 \\ 5 + 2 &= 6 + 10 - 9 \\ 7 &= 16 - 9 \\ 7 &= 7 \checkmark \end{aligned}$$

$$\begin{aligned} 16) \quad 6 - 2(x+7) &= 10 - 24 \\ 6 - 2x - 14 &= 10 - 24 \\ -2x - 8 &= -14 \\ +8 \quad +8 & \end{aligned}$$

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

$$\boxed{x=3}$$

$$\begin{aligned} \text{Check:} \\ 6 - 2(3+7) &= 10 - 24 \\ 6 - 2(10) &= -14 \\ 6 - 20 &= -14 \\ -14 &= -14 \checkmark \end{aligned}$$