

$$1) \begin{array}{r} -5A + 3 + 8A - 4 = 9 + 3 - 1 \\ (-5A + 8A) + (3 - 4) = 11 \\ 3A + (-1) = 11 \\ +1 \quad +1 \\ \hline 3A = 12 \\ \hline A = 4 \end{array}$$

$$\text{Check: } -5(4) + 3 + 8(4) - 4 = 9 + 3 - 1 \\ -20 + 3 + 32 - 4 = 9 + 3 - 1 \\ 11 = 11$$

Checks for #2 - #14 will not be shown.

$$2) \begin{array}{r} 3B - B + 7 + 4B = 43 \\ 6B + 7 = 43 \\ -7 \quad -7 \\ \hline 6B = 36 \\ \hline B = 6 \end{array}$$

$$3) \begin{array}{r} -4Y - 6 + 7Y + 3 + Y = 17 \\ 4Y - 3 = 17 \\ +3 \quad +3 \\ \hline 4Y = 20 \\ \hline Y = 5 \end{array}$$

$$4) \begin{array}{r} 5Q + 3Q - 6 + 2Q = (2 + 3) + 9 \\ 10Q - 6 = 14 \\ +6 \quad +6 \\ \hline 10Q = 20 \\ \hline Q = 2 \end{array}$$

$$5) \begin{array}{r} 6K - 5 + 4K - K + 2 = 12 - 2 \\ 9K - 3 = 24 \\ +3 \quad +3 \\ \hline 9K = 27 \\ \hline K = 3 \end{array}$$

$$6) \begin{array}{r} 5C - 2C - 8 + 7 - C = 3 - 4 + 1 \\ 2C - 1 = 13 \\ +1 \quad +1 \\ \hline 2C = 14 \\ \hline C = 7 \end{array}$$

$$7) \begin{array}{r} 4A + 6 = 2A + 12 \\ 4A - 2A = 12 - 6 \\ \hline 2A = 6 \\ \hline A = 3 \end{array}$$

$$8) \begin{array}{r} 10B - 2B + 3 = 5B + 21 \\ 8B - 5B = 21 - 3 \\ \hline 3B = 18 \\ \hline B = 6 \end{array}$$

$$9) \begin{array}{r} 6C - 8 + 3C = 7C - 2C + 12 \\ 9C - 5C = 12 + 8 \\ \hline 4C = 20 \\ \hline C = 5 \end{array}$$

$$10) \begin{array}{r} 6D - 10 = -2D - 34 \\ 6D + 2D = -34 + 10 \\ \hline 8D = -24 \\ \hline D = -3 \end{array}$$

$$11) \begin{array}{r} -3A - 3 - 6A + 10A + 5 = 10 \\ A + 2 = 10 \\ -2 \quad -2 \\ \hline A = 8 \end{array}$$

$$12) \begin{array}{r} -5B - B + 4 + 10B - 7 = 7 - 11 \\ 4B - 3 = 77 \\ +3 \quad +3 \\ \hline 4B = 80 \\ \hline B = 20 \end{array}$$

$$13) \begin{array}{r} -4R + 7R - 3 + 5R = 10^2 - 7 \\ 8R = 100 - 7 + 3 \\ \hline 8R = 96 \\ \hline R = 12 \end{array}$$

$$14) \begin{array}{r} -7Q + 8 - 6 + 5Q = 3 - 5 - 7 \\ -2Q + 2 = 8 \\ -2 \quad -2 \\ \hline -2Q = 6 \\ \hline Q = -3 \end{array}$$

$$1) \begin{array}{r} -3A - 5 + 4A - 6 + 2A = 19 \\ 3A - 11 = 19 \\ +11 \quad +11 \\ \hline 3A = 30 \\ \hline A = 10 \end{array}$$

$$\text{Check: } -3(10) - 5 + 4(10) - 6 + 2(10) = 19 \\ -30 - 5 + 40 - 6 + 20 = 19 \\ 19 = 19$$

Checks for #2 - #14 will not be shown.

$$2) \begin{array}{r} 8B - 6 + 5B - 3 - 3B = 41 \\ 10B - 9 = 41 \\ +9 \quad +9 \\ \hline 10B = 50 \\ \hline B = 5 \end{array}$$

$$3) \begin{array}{r} -5Y + 3 - 6Y + 2Y + 4 = 13 \\ -9Y + 7 = 13 \\ -7 \quad -7 \\ \hline -9Y = 6 \\ \hline Y = -2/3 \end{array}$$

$$4) \begin{array}{r} 8Q - Q + 7 - 4 - 3Q = 7 + 4 \times 10 \\ 4Q + 3 = 47 \\ -3 \quad -3 \\ \hline 4Q = 44 \\ \hline Q = 11 \end{array}$$

$$5) \begin{array}{r} 8M - 4M - 6 - 3 + 5M = 8^2 - 1 \\ 9M - 9 = 63 \\ +9 \quad +9 \\ \hline 9M = 72 \\ \hline M = 8 \end{array}$$

$$6) \begin{array}{r} 7C - 4C + 5 - 8 + C = 5^2 + 4 \\ 4C - 3 = 29 \\ +3 \quad +3 \\ \hline 4C = 32 \\ \hline C = 8 \end{array}$$

$$7) \begin{array}{r} 11A - 4A - 18 = 2A + A + 10 \\ 7A - 3A = 10 + 18 \\ \hline 4A = 28 \\ \hline A = 7 \end{array}$$

$$8) \begin{array}{r} 2B - 10B - 15 + 5 = 8B - 40 - 4B - 6 \\ -8B - 10 = 4B - 46 \\ -8B - 4B = -46 + 10 \\ \hline -12B = -36 \\ \hline B = 3 \end{array}$$

$$9) \begin{array}{r} 3C - 6 + 2C = 10C - 2C + 6 \\ 5C - 6 = 8C + 6 \\ 5C - 8C = 6 + 6 \\ \hline -3C = 12 \\ \hline C = -4 \end{array}$$

$$10) \begin{array}{r} 2D - 8 - 5D = -3D - 2D + 6 \\ -3D - 8 = -5D + 6 \\ -3D + 5D = 6 + 8 \\ \hline 2D = 14 \\ \hline D = 7 \end{array}$$

$$11) \begin{array}{r} 8K - 6 + 3K - 2K + 3 = 4 \times 33 \\ 9K - 3 = 132 \\ +3 \quad +3 \\ \hline 9K = 135 \\ \hline K = 15 \end{array}$$

$$12) \begin{array}{r} B + B + B + 6 = 6B + 5 - 2B + 9 \\ 3B + 6 = 4B + 14 \\ 6 - 14 = 4B - 3B \\ \hline -8 = B \\ B = -8 \end{array}$$

$$13) \begin{array}{r} -2C + 12 = 2C - 6 + 6C - 12 \\ -2C + 12 = 8C - 18 \\ -2C - 8C = -18 - 12 \\ \hline -10C = -30 \\ \hline C = 3 \end{array}$$

$$14) \begin{array}{r} 10X - 3X - 9 + 3 - X = 51 \div 3 + 1 \\ 6X - 6 = 18 \\ +6 \quad +6 \\ \hline 6X = 24 \\ \hline X = 4 \end{array}$$

3C

$$1) \begin{array}{r} X + 3 = 9 \\ X + 3 - 3 = 9 - 3 \\ \hline X = 6 \end{array}$$

$$2) \begin{array}{r} X + 6 = 10 \\ X + 6 - 6 = 10 - 6 \\ \hline X = 4 \end{array}$$

$$3) \begin{array}{r} 2X + 5 = 11 \\ 2X + 5 - 5 = 11 - 5 \\ \hline 2X = 6 \\ \hline X = 3 \end{array}$$

$$4) \begin{array}{r} 4Q - 2 = 10 \\ 4Q - 2 + 2 = 10 + 2 \\ \hline 4Q = 12 \\ \hline Q = 3 \end{array}$$

$$5) \begin{array}{r} 4X + 2 = 2X + 8 \\ 4X + 2 - 2 = 2X + 8 - 2 \\ \hline 4X = 2X + 6 \\ 4X - 2X = 2X - 2X + 6 \\ \hline 2X = 6 \\ \hline X = 3 \end{array}$$

$$6) \begin{array}{r} 3Y + 5 = 2Y + 7 \\ 3Y + 5 - 5 = 2Y + 7 - 5 \\ \hline 3Y = 2Y + 2 \\ 3Y - 2Y = 2Y - 2Y + 2 \\ \hline Y = 2 \end{array}$$

$$7) \begin{array}{r} Q + 4 = 3Q - 6 \\ Q + 4 - Q = 3Q - 6 - Q \\ \hline 4 = 2Q - 6 \\ 4 + 6 = 2Q - 6 + 6 \\ \hline 10 = 2Q \\ 10 \div 2 = 2Q \div 2 \\ \hline 5 = Q \end{array}$$

$$8) \begin{array}{r} 2R + 8 = 3R - 2 \\ 2R - 2R + 8 = 3R - 2R - 2 \\ \hline 8 = R - 2 \\ 8 + 2 = R - 2 + 2 \\ \hline 10 = R \end{array}$$

$$9) \begin{array}{r} 9 - 3 < |4 - 11| \\ 6 < |7| \\ 6 < 7 \end{array}$$

$$10) \begin{array}{r} |1 - 2 - 3| < |2 \times 3| \\ |4| < |6| \\ 4 < 6 \end{array}$$

$$11) \begin{array}{r} (-3) \times 4 + 6^2 \times (-3) + 5^2 = \\ -3 \times 4 + 36 \times (-3) + 25 = \\ -12 + (-108) + 25 = -120 + 25 = -95 \end{array}$$

$$12) \begin{array}{r} 14 - 9 + 2^2 - (3 \div 6 \times 2^2) = \\ (14 - 9 + 4) - (3 \div 6 \times 4) = \\ 9 - (3/6 \times 4) = 9 - (1/2 \times 4) = 9 - 2 = 7 \end{array}$$

$$13) \begin{array}{r} \frac{4}{3} \times \frac{6}{10} \div \frac{2}{3} = \\ \frac{2}{1} \times \frac{1}{5} \times \frac{3}{1} = \frac{6}{5} = 1 \frac{1}{5} \end{array}$$

$$14) \begin{array}{r} .17 \\ .8 \\ \hline 5 \\ 86 \\ \hline .136 \text{ (three decimal places in answer)} \end{array}$$

$$15) (-8)(-7) = 56$$

$$16) (-4)^2 = (-4)(-4) = 16$$

$$17) 2 = 2, 3 = 3, 4 = 2 \times 2, \text{ so LCM} = 2 \times 2 \times 3 = 12 \\ \frac{6}{(12)} \times \frac{1}{2} + \frac{4}{(12)} \times \frac{2}{3} = \frac{3}{(12)} \times \frac{1}{1} + \frac{8}{(12)} \times \frac{1}{1} = \frac{11}{12} \\ \text{(It is not necessary to write in "1" when dividing terms unless you wish.)}$$

$$18) 2, 5, 4 = 2 \times 2, \text{ so LCM} = 2 \times 2 \times 5 = 20 \\ \frac{4}{(20)} \times \frac{3}{5} + \frac{5}{(20)} \times \frac{3}{4} = \frac{10}{(20)} \times \frac{3}{1} + \frac{15}{(20)} \times \frac{3}{1} = \frac{35}{20} = 1 \frac{7}{4}$$

$$19) 3, 5, 9 = 3 \times 3, \text{ so LCM} = 3 \times 3 \times 5 = 45 \\ \frac{5}{(45)} \times \frac{1}{3} + \frac{15}{(45)} \times \frac{2}{5} = \frac{9}{(45)} \times \frac{1}{1} + \frac{6}{(45)} \times \frac{1}{1} = \frac{15}{45} = \frac{1}{3}$$

$$20) 4, 4 = 2 \times 2, 8 = 2 \times 2 \times 2, \text{ so LCM} = 2 \times 2 \times 2 \times 5 = 40 \\ \frac{5}{(40)} \times \frac{3}{8} - \frac{8}{(40)} \times \frac{1}{5} = \frac{10}{(40)} \times \frac{3}{1} - \frac{16}{(40)} \times \frac{1}{1} = \frac{30}{40} - \frac{16}{40} = \frac{14}{40} = \frac{7}{20} \\ -8X = 15, X = -1 \frac{7}{8}$$

3D

$$1) \begin{array}{r} Y - 3 = 10 \\ Y - 3 + 3 = 10 + 3 \\ \hline Y = 13 \end{array}$$

$$2) \begin{array}{r} 2B - 5 = 13 \\ 2B = 18 \\ 2B \div 2 = 18 \div 2 \\ \hline B = 9 \end{array}$$

$$3) \begin{array}{r} 3C + 6 = -9 \\ 3C = -15 \\ 3C \div 3 = -15 \div 3 \\ \hline C = -5 \end{array}$$

$$4) \begin{array}{r} 2D - 5 = 1 \\ 2D = 6 \\ 2D \div 2 = 6 \div 2 \\ \hline D = 3 \end{array}$$

$$5) \begin{array}{r} 4E - 3 = -3 \\ 4E = 0 \\ \hline E = 0 \end{array}$$

$$6) \begin{array}{r} 3X + 8 = -2X - 2 \\ 3X + 2X = -2X + 2X - 10 \\ \hline 5X = -10 \\ 5X \div 5 = -10 \div 5 \\ \hline X = -2 \end{array}$$

$$7) \begin{array}{r} 2Y - 2 = 3Y - 6 \\ 2Y - 3Y = -6 + 2 \\ \hline -Y = -4 \\ (-1)(-Y) = (-1)(-4) \\ \hline Y = 4 \end{array}$$

$$8) \begin{array}{r} Z + 8 = 2Z + 18 \\ Z - 2Z = 18 - 8 \\ \hline -Z = 10 \\ \hline Z = -10 \end{array}$$

$$9) \begin{array}{r} |3 \times 2 \times (-2)| > 24 \div (-3) \\ |12| > -8 \\ 12 > -8 \end{array}$$

$$10) \begin{array}{r} |17 - 3 - 20| < |7 + 0 + 1| \\ |-6| < |8| \\ 6 < 8 \end{array}$$

$$11) \begin{array}{r} [(6 - 2) \times 5^2 - 10] \div 5^2 = \\ [4 \times 25 - 10] \div 25 = \\ [100 - 10] \div 25 = 90 \div 25 = 3 \frac{3}{5} \text{ or } 3.6 \end{array}$$

$$12) (-7 - 6)^2 - (4 + 5 - 3)^2 = \\ (-13)^2 - 6^2 = 169 - 36 = 133$$

$$13) \begin{array}{r} \frac{5}{6} \times \frac{3}{7} \div \frac{2}{3} = \\ \frac{5}{6} \times \frac{3}{7} \times \frac{3}{2} = \frac{15}{28} \end{array}$$

$$14) \begin{array}{r} 14 \\ 12 \overline{) 168} \\ \underline{12} \\ 48 \\ \underline{48} \\ 0 \end{array}$$

$$15) 2 = 2, 5 = 5, 10 = 2 \times 5, \text{ so LCM} = 2 \times 5 = 10$$

$$16) \frac{2}{(10)} \times \frac{6}{5} + \frac{1}{(10)} \times \frac{7}{5} = \frac{5}{(10)} \times \frac{5}{5} + \frac{7}{(10)} \times \frac{1}{5} = \frac{5}{10} + \frac{7}{50} = \frac{10}{10} + \frac{7}{50} = \frac{57}{50}$$

$$17) \begin{array}{r} 100 = 10 \times 10, 1000 = 10 \times 10 \times 10 \\ \text{LCM} = 10 \times 10 \times 10 = 1000 \\ 1000(.83) + 1000(.04X) = 1000(.325) \\ 830 + 40X = 325 \\ 40X = -505, X = -12.625 \text{ or } -12 \frac{5}{8} \end{array}$$

$$18) \begin{array}{r} 10 = 10, 100 = 10 \times 10 \\ \text{LCM} = 10 \times 10 = 100 \\ 100(-.18) + 100(.2X) = 100(.17) \\ 18 + 20X = 17 \\ 20X = -1, X = -.05 \text{ or } -1/20 \end{array}$$

$$19) \begin{array}{r} 10 = 10, 100 = 10 \times 10 \\ \text{LCM} = 10 \times 10 = 100 \\ 100(.8X) + 100(.13) = 100(.7) + 100(.24) \\ 80X + 130 = 700 + 24 \\ 80X = 594, X = 7.425 \text{ or } 7 \frac{17}{40} \end{array}$$

$$20) \begin{array}{r} 10 = 10, 100 = 10 \times 10 \\ \text{LCM} = 10 \times 10 = 100 \\ 100(8.2) - 100(4) = 100(.08X) \\ 820 - 400 = 8X \\ 420 = 8X, X = 52.5 \text{ or } 52 \frac{1}{2} \end{array}$$