

7.6

$$1) \frac{10}{a} = \frac{6}{8}$$

$$\frac{80}{6} = \frac{6a}{6}$$

$$13.3 = a$$

$$3) \frac{7}{6} = \frac{2}{k}$$

$$\frac{7k}{7} = \frac{12}{7}$$

$$k = 1.71$$

$$5) \frac{6}{x} = \frac{8}{2}$$

$$\frac{12}{8} = \frac{8x}{8}$$

$$1.5 = x$$

$$7) \frac{m-1}{5} = \frac{8}{2}$$

$$2(m-1) = 40$$

$$2m - 2 = 40$$

$$\begin{array}{r} + 2 \quad + 2 \\ \hline 2m = 42 \\ \frac{2m}{2} = \frac{42}{2} \\ m = 21 \end{array}$$

$$9) \frac{2}{9} = \frac{10}{p-4}$$

$$2(p-4) = 90$$

$$2p - 8 = 90$$

$$\begin{array}{r} + 8 \quad + 8 \\ \hline 2p = 98 \\ \frac{2p}{2} = \frac{98}{2} \\ p = 49 \end{array}$$

$$11) \frac{b-10}{7} = \frac{b}{4}$$

$$4(b-10) = 7b$$

$$4b - 40 = 7b$$

$$\begin{array}{r} -4b \quad - 4b \\ \hline -40 = 3b \\ \frac{-40}{3} = \frac{3b}{3} \\ -13.3 = b \end{array}$$

$$13) \frac{x}{5} = \frac{x+2}{9}$$

$$9x = 5(x+2)$$

$$9x = 5x + 10$$

$$\begin{array}{r} -5x \quad - 5x \\ \hline 4x = 10 \\ \frac{4x}{4} = \frac{10}{4} \\ x = 2.5 \end{array}$$

$$15) \frac{3}{10} = \frac{a}{a+2}$$

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

$$3a + 6 = 10a$$

$$\begin{array}{r} -3a \quad - 3a \\ \hline 6 = 7a \\ \frac{6}{7} = \frac{7a}{7} \\ 0.86 = a \end{array}$$

$$17) \frac{v-5}{v+6} = \frac{4}{9}$$

$$9(v-5) = 4(v+6)$$

$$9v - 45 = 4v + 24$$

$$\begin{array}{r} -4v \quad - 4v \\ \hline 5v - 45 = 24 \\ + 45 \quad + 45 \\ \hline 5v = 69 \\ \frac{5v}{5} = \frac{69}{5} \\ v = 13.8 \end{array}$$

$$19) \frac{7}{x-1} = \frac{4}{x-6}$$

$$7(x-6) = 4(x-1)$$

$$7x - 42 = 4x - 4$$

$$\begin{array}{r} -4x \quad - 4x \\ \hline 3x - 42 = -4 \\ + 42 \quad + 42 \\ \hline 3x = 38 \\ \frac{3x}{3} = \frac{38}{3} \\ x = 12.67 \end{array}$$

$$\begin{aligned}
21) \quad \frac{x+5}{5} &= \frac{6}{x-2} \\
(x+5)(x-2) &= 30 \\
x^2 + 5x - 2x - 10 &= 30 \\
x^2 + 3x - 10 &= 30 \\
&\quad \underline{-30 \quad -30} \\
x^2 + 3x - 40 &= 0 \\
(x+8)(x-5) &= 0 \\
x+8=0 \quad x-5=0 \\
\underline{-8 \quad -8} \quad \underline{+5 \quad +5} \\
x = -8 \quad x = 5
\end{aligned}$$

$$\begin{aligned}
27) \quad \frac{n+4}{3} &= \frac{-3}{n-2} \\
(n+4)(n-2) &= -9 \\
n^2 - 2n + 4n - 8 &= -9 \\
n^2 + 2n - 8 &= -9 \\
&\quad \underline{+9 \quad +9} \\
n^2 + 2n + 1 &= 0 \\
(n+1)^2 &= 0 \\
n+1 &= 0 \\
\underline{-1 \quad -1} \\
n &= -1
\end{aligned}$$

$$\begin{aligned}
23) \quad \frac{m+3}{4} &= \frac{11}{m-4} \\
(m+3)(m-4) &= 44 \\
m^2 - 4m + 3m - 12 &= 44 \\
m^2 - m - 12 &= 44 \\
&\quad \underline{-44 \quad -44} \\
m^2 - m - 56 &= 0 \\
(m-8)(m+7) &= 0 \\
m-8=0 \quad m+7=0 \\
\underline{+8 \quad +8} \quad \underline{-7 \quad -7} \\
m = 8 \quad m = -7
\end{aligned}$$

$$\begin{aligned}
29) \quad \frac{3}{x+4} &= \frac{x+2}{5} \\
15 &= (x+4)(x+2) \\
15 &= x^2 + 2x + 4x + 8 \\
15 &= x^2 + 6x + 8 \\
\underline{-15 \quad -15} \\
0 &= x^2 + 6x - 7 \\
0 &= (x+7)(x-1) \\
x+7=0 \quad x-1=0 \\
\underline{-7 \quad -7} \quad \underline{+1 \quad +1} \\
x = -7 \quad x = 1
\end{aligned}$$

$$\begin{aligned}
25) \quad \frac{2}{p+4} &= \frac{p+5}{3} \\
6 &= (p+4)(p+5) \\
6 &= p^2 + 5p + 4p + 20 \\
6 &= p^2 + 9p + 20 \\
\underline{-6 \quad -6} \\
0 &= p^2 + 9p + 14 \\
0 &= (p+7)(p+2) \\
p+7=0 \quad p+2=0 \\
\underline{-7 \quad -7} \quad \underline{-2 \quad -2} \\
p &= -7, -2
\end{aligned}$$

31) The currency in Western Samoa is the Tala. The exchange rate is approximately \$0.70 to 1 Tala.

At this rate, how many dollars would you get if you exchanged 13.3 Tala?

$$\begin{aligned}
\frac{T}{\$} &= \frac{1}{0.70} = \frac{13.3}{x} \\
x &= \$9.31
\end{aligned}$$

- 39) Kali reduced the size of a painting to a height of 1.3 in. What is the new width if it was originally 5.2 in. tall and 10 in. wide?

$$\frac{h}{w} = \frac{5.2}{10} = \frac{1.3}{x}$$

$$x = 2.5 \text{ in}$$

- 41) A bird bath that is 5.3 ft tall casts a shadow that is 25.4 ft long. Find the length of the shadow that a 8.2 ft adult elephant casts.

$$\frac{h}{s} = \frac{5.3}{25.4} = \frac{8.2}{x}$$

$$x = 39.3 \text{ ft}$$

- 43) The Vikings led the Timberwolves by 19 points at the half. If the Vikings scored 3 points for every 2 points the Timberwolves scored, what was the half time score?

$$\frac{V}{T} = \frac{(x+19)}{x} = \frac{3}{2}$$

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

$$2x + 38 = 3x$$

$$\begin{array}{r} -2x \qquad \qquad -2x \\ \hline 38 = x \end{array}$$

Timberwolves: 38

Vikings: 57

- 45) Computer Services Inc. charges \$8 more for a repair than Low Cost Computer Repair. If the ratio of the costs is 3 : 6, what will it cost for the repair at Low Cost Computer Repair?

$$\frac{CSI}{LCCR} = \frac{x+8}{x} = \frac{6}{3}$$

$$3(x + 8) = 6x$$

$$3x + 24 = 6x$$

$$\begin{array}{r} -3x \qquad \qquad -3x \\ \hline 24 = 3x \\ \frac{24}{3} = \frac{3x}{3} \\ \$8 = x \end{array}$$