

Section 2.6

$$\begin{aligned} \textcircled{A2} \quad 5(x-4) - 3(2-3x) &= -54 \\ 5x - 20 - 6 + 9x &= -54 \\ 14x &= -28 \\ x &= -2 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad -3(1-11x) + (8x-15) &= 187 \\ -3 + 33x + 8x - 15 &= 187 \\ 41x &= 205 \\ x &= 5 \end{aligned}$$

$$\begin{aligned} \textcircled{B2} \quad x + \frac{5}{8}x &= 26 \\ \frac{13x}{8} &= 26 \\ x &= 16 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad 2 - \frac{3}{2}x &= \frac{2}{3}x + \frac{31}{9} \\ 2 - \frac{31}{9} &= \frac{2}{3}x + \frac{3}{2}x \\ -\frac{13}{9} &= \frac{13}{6}x \\ -\frac{2}{3} &= x \end{aligned}$$

$$\textcircled{C2} \quad \frac{4}{5}(4-3x) + \frac{53}{40} = \frac{3x}{10} - \frac{7}{8}(2x-3)$$

$$\begin{aligned} \text{LCD} &= 40 \\ 8 \cdot \frac{4}{5}(4-3x) + \frac{53}{40} &= \frac{4}{10}3x - \frac{5}{40}7(2x-3) \\ 32(4-3x) + 53 &= 12x - 35(2x-3) \\ 128 - 96x + 53 &= 12x - 70x + 105 \\ 76 &= 38x \\ 2 &= x \end{aligned}$$

$$\textcircled{4} \quad \frac{4}{3}(3x-2) - \frac{3}{5}(4x-3) = \frac{11}{60} + 3x$$

$$\begin{aligned} 20 \cdot \frac{4}{3}(3x-2) - \frac{12}{5}(4x-3) &= \frac{11}{60} + 60(3x) \\ 80(3x-2) - 36(4x-3) &= 11 + 180x \\ 240x - 160 - 144x + 108 &= 11 + 180x \\ -63 &= 84x \\ -\frac{3}{4} &= x \end{aligned}$$

$$\textcircled{D2} \quad Q = \frac{p-q}{2} \quad \text{for } p$$

$$2Q = p - q$$

$$p = 2Q + q$$

$$\textcircled{G} \quad P = S(1+i)^{-n}$$

$$(1+i)^n = \frac{S}{P}$$

$$(1+i) = \sqrt[n]{\frac{S}{P}}$$

$$i = \sqrt[n]{\frac{S}{P}} - 1$$

Section 3.1

$$\textcircled{A1} \text{ a) } \frac{12}{32} = \frac{3}{8} \quad 3:8$$

$$\text{b) } \frac{84}{56} = \frac{3}{2} \quad 3:2$$

$$\textcircled{2a} \text{) } \frac{120}{125} = \frac{24}{25} \quad 24:25$$

$$\text{b) } \frac{15}{72} = \frac{5}{24} \quad 5:24$$

$$\textcircled{3b} \text{) } \frac{2.4}{8.4} = \frac{2}{7} \quad 2:7$$

$$\text{f) } \frac{5/3}{7/5} = \frac{25}{21} \quad 25:21$$

$$\textcircled{n} \text{) } \frac{5\frac{1}{4}}{5\frac{5}{6}} = \frac{9}{10} \quad 9:10$$

$$\textcircled{B2} \quad 2500:87500 \quad \frac{2500}{87500} = \frac{1}{35} \quad 1:35$$

$$\textcircled{4} \quad 4.25:2.75:3.25 \\ 17:11:13$$

$$\textcircled{6} \quad 20:45:5 \\ 4:9:1$$

(2)

$$\begin{aligned} \text{Total } m^2 &= 1000 + 600 + 800 + 400 \\ &= 2800 m^2 \end{aligned}$$

Allocation:

$$A: \frac{1000}{2800} (21000) = \$ 7500$$

$$D: \frac{400}{2800} (21000) = \$ 3000$$

$$B: \frac{600}{2800} (21000) = \$ 45000$$

$$C: \frac{800}{2800} (21000) = \$ 60000$$

(4)

$$\text{Total \# millions} = 10.8 + 8.4 + 14.4 = 33.6$$

$$\text{Northern div. } \frac{10.8}{33.6} (588000) = \$ 189000$$

$$\text{East. div. } \frac{8.4}{33.6} (588000) = \$ 147000$$

$$\text{West. div. } \frac{14.4}{33.6} (588000) = \$ 252000$$

(6)

$$\frac{1}{8} : \frac{1}{4} : \frac{1}{2} : \frac{1}{16}, \text{ LCD} = 16$$

$$2 : 4 : 8 : 1 \quad \# \text{ of parts} = 2 + 4 + 8 + 1 = 15$$

Allocation:

$$\frac{2}{15} (480000) = \$ 64000$$

$$\frac{4}{15} (480000) = \$ 128000$$

$$\frac{8}{15} (480000) = \$ 256000$$

$$\frac{1}{15} (480000) = \$ 32000$$

Section 3.2:

$$\textcircled{A2} \quad \frac{n}{7} = \frac{24}{42}$$
$$n = 4$$

$$\textcircled{6} \quad \frac{2.17}{1.61} = \frac{K}{4.6}$$
$$K = 6.2$$

$$\textcircled{10} \quad \frac{3/4}{t} = \frac{5/8}{4/9}$$
$$t = 8/15$$

$$\textcircled{B2} \quad \frac{28}{1000} = \frac{854}{X}$$
$$X = \$30500$$

$$\textcircled{6} \quad \frac{1}{3} = \frac{1300}{\text{Total value}}$$
$$\text{Total value of damaged sell} = 3900$$

$$b) \quad \frac{3}{8} = \frac{3900}{\text{Total value}}$$
$$\text{Total value} = 10400$$

$$a) \quad \frac{5}{8} (10400) = 6500$$

∴ the amount loss by the fire is \$6500

$$\textcircled{8} \quad \frac{\text{Material Cost}}{\text{Total Cost}} = \frac{5}{8}$$

$$\frac{\text{Labour Cost}}{\text{Material Cost}} = \frac{1}{3}$$

$$\frac{15}{\text{Material Cost}} = \frac{1}{3}$$

$$\text{Material Cost} = 45$$

$$\frac{45}{\text{Total Cost}} = \frac{5}{8}$$

$$\text{Total Cost} = \$72$$

Section 3.3

$$\begin{aligned} \textcircled{A2} \text{ Percentage} &= \text{base} \times \text{rate} \\ &= 950 (0.001) \\ &= 0.95 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \text{ Percentage} &= \text{base} \times \text{rate} \\ &= 240 (0.15) \\ &= 36 \end{aligned}$$

$$\begin{aligned} \textcircled{10} \text{ Percentage} &= \text{base} \times \text{rate} \\ &= 500 (0.005) \\ &= 2.5 \end{aligned}$$

$$\begin{aligned} \textcircled{B2} \text{ Percentage} &= \text{base} \times \text{rate} \\ &= 400 (1.375) \\ &= 550 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \text{ Percentage} &= \text{base} \times \text{rate} \\ &= 1600 (1.75) \\ &= \$2800 \end{aligned}$$

$$\begin{aligned} \textcircled{10} \text{ Percentage} &= \text{base} \times \text{rate} \\ &= 90 \times (1.6\bar{6}) \\ &= \$150.00 \end{aligned}$$

$$\begin{aligned} \textcircled{C2} \text{ Percentage} &= \text{base} \times \text{rate} \\ \text{rate} &= \frac{\text{Percentage}}{\text{base}} \\ &= \frac{54}{72} \\ &= 75\% \end{aligned}$$

$$\begin{aligned} \textcircled{6} \text{ rate} &= \frac{\text{Percentage}}{\text{base}} \\ &= \frac{11}{440} \\ &= 2.5\% \end{aligned}$$

$$\begin{aligned} \textcircled{10} \text{ rate} &= \frac{39}{18} \\ &= 216\frac{2}{3}\% \end{aligned}$$

(D2)

$$\begin{aligned} \text{rate} &= \frac{36}{15} \\ &= 240\% \end{aligned}$$

(6)

$$\begin{aligned} \text{Percentage} &= \text{Rate} \times \text{Base} \\ 300 &= 2.5 \times \text{Base} \\ \text{Base} &= \frac{300}{2.5} \\ &= 120 \end{aligned}$$

(10)

$$\begin{aligned} \frac{180}{450} &= \text{rate} \\ \text{rate} &= 40\% \end{aligned}$$

(E2)

$$\begin{aligned} \text{Labour} &= 37\frac{1}{2}\% \text{ (Total Cost)} \\ &= 0.375 (72) \\ &= 27 \end{aligned}$$

(6)

$$\begin{aligned} \text{Percentage} &= \text{Rate} \times \text{Base} \\ \text{Deduction} &= \text{Rate} \times \text{Gross Salary} \\ 53.46 &= (0.04915)(\text{Gross Salary}) \\ \text{Gross salary} &= 1080 \end{aligned}$$

(10)

$$\begin{aligned} \text{rate} &= \frac{\text{Percentage}}{\text{Base}} \\ &= \frac{18}{45} \\ &= 40\% \end{aligned}$$

Section 1.5

(A2)

a) She will get $\frac{52}{2} = 26$ pays

$$\therefore \frac{23\,868.00}{26} = \$918$$

is her regular gross pay

$$\textcircled{b} \text{ rate } \$/\text{hr} = \frac{918}{2(37.5)} = \$12.24/\text{hr}$$

since she gets \$918
every two weeks.

$$\textcircled{c} \text{ regular gross pay} + 12.24 \left(\frac{3}{2}\right)(8.5)$$

$$= 918 + 12.24 \left(\frac{3}{2}\right)(8.5) =$$

$$= \$1074.06$$

$$\textcircled{8} \text{ Net sales} = 24250 - 855 = 23395$$

$$\text{Commission} = 10000(4.5\%) + 5000(6\%) + 8395(8\%)$$
$$= \$1421.60$$

$$\textcircled{14} \text{ amount of Salary} = 337.50 - 264.00$$
$$\text{from Commission} = 73.5$$

$$\text{Commission} = \text{rate} \times (\text{Sales minus quota})$$
$$73.5 = (0.0875) \times (\text{Sales minus quota})$$

$$\$840.00 = \text{Sales minus quota}$$

$$\therefore \text{Sales} = 840.00 + \text{quota}$$
$$= 840 + 4800$$
$$= \$5640$$

$$(18) \quad 361 = \text{wage} (40) + \text{wage} \left(\frac{3}{2}\right)(5)$$

$$361 = 40 \text{ wage} + \frac{15}{2} \text{ wage}$$

$$361 = \frac{95}{2} \text{ wage}$$

$$\$7.60/\text{hr} = \text{wage}$$

Section 1.6

$$(2) \quad \text{Net revenue} = \frac{28\,620}{1.05}$$

$$= \$27\,257.14$$

$$\text{GST Collected} = 28\,620 - 27\,257.14$$
$$= 1\,362.86$$

GST paid

$$\text{GST on amount spent} = (0.05)(8000)$$
$$= 400$$

$$\text{GST to repay} = \text{GST Collected} - \text{GST paid}$$
$$= 1\,362.82 - 400$$
$$= \$962.82$$

(6) Price of snowboard in Ontario

$$\begin{array}{r} 625 \\ 625(0.08) = 50 \quad \text{PST} \\ 625(0.05) = 31.25 \quad \text{GST} \\ \hline \$706.25 \end{array}$$

Price of snowboard in Quebec

$$\begin{array}{r} 625 \\ 625(0.05) = 31.25 \quad \text{GST} \\ \hline \$656.25 \end{array}$$

$$\begin{aligned}
 \textcircled{8} \quad \text{Property tax} &= \frac{\text{Mill rate (assessed value)}}{1000} \\
 &= \frac{19,368 (225,000)}{1000} \\
 &= \$4357.80
 \end{aligned}$$

$$\begin{aligned}
 \textcircled{10} \quad \text{a) Total expenditures} &= 10,050,000 \\
 &+ 2,000,000 \\
 &+ 250,000 \\
 &+ 700,000 \\
 &+ 850,000 \\
 &\hline
 &= \$13,850,000
 \end{aligned}$$

$$\begin{aligned}
 \text{The amount to be raised} &= 0.8 (13,850,000) \\
 \text{by property tax} &= 11,080,000
 \end{aligned}$$

$$\text{b) Property tax} = \frac{\text{Mill rate (assessed value)}}{1000}$$

$$11,080,000 = \frac{\text{Mill rate (250,000,000)}}{1000}$$

$$44.32 = \text{Mill rate}$$

$$\text{c) Property tax} = \frac{\text{Mill rate (assessed value)}}{1000}$$

$$= \frac{44.32 (175,000)}{1000}$$

$$= \$7756$$

Forgot Section 1.5 16

Monday $7\frac{1}{2}$
Tuesday 9
Wednesday $7\frac{1}{2}$
Thursday $10\frac{1}{2}$
Friday $7\frac{1}{2}$
Saturday 6

Method A:

$$\begin{aligned} & 7\frac{1}{2}(5)(10.60) + 2(6)(10.60) \\ & + \left(\frac{3}{2}\right)(4.5)(10.60) \\ & = \$ 596.25 \end{aligned}$$

Method B:

$$\begin{aligned} & (7\frac{1}{2} + 9 + 7\frac{1}{2} + 10\frac{1}{2} + 7\frac{1}{2} + 6)(10.60) \\ & + (4.5)(0.5)(10.60) + 2(6)(10.60) \\ & = \$ 596.25 \end{aligned}$$