

Revision 1B (pp. 125-126)

$$\begin{array}{r}
 1. (a) \quad 3 \mid 1155 \\
 \quad \quad 5 \mid \underline{385} \\
 \quad \quad 7 \mid \underline{77} \\
 \quad \quad 11 \mid \underline{11}
 \end{array}$$

$$1155 = 3 \times 5 \times 7 \times 11$$

$$\begin{array}{r}
 2. (a) \quad 2 \mid 32, 12 \\
 \quad \quad 2 \mid \underline{16, 6} \\
 \quad \quad 2 \mid \underline{8, 3} \\
 \quad \quad 2 \mid \underline{4, 3} \\
 \quad \quad \quad 2, 3 \\
 \text{LCM} = 2^5 \times 3 \\
 = 96
 \end{array}$$

$$\begin{array}{r}
 (b) \quad 3 \mid 5, 9, 12, 16 \\
 \quad \quad 2 \mid \underline{5, 3, 4, 16} \\
 \quad \quad 2 \mid \underline{5, 3, 2, 8} \\
 \quad \quad \quad 5, 3, 1, 4 \\
 \text{LCM} = 2^4 \times 3^2 \times 5 \\
 = 720
 \end{array}$$

$$\begin{array}{r}
 (c) \quad 2 \mid 52, 28, 20 \\
 \quad \quad 2 \mid \underline{26, 14, 10} \\
 \quad \quad \quad 13, 7, 5 \\
 \text{LCM} = 2^2 \times 5 \\
 \quad \times 7 \times 13 \\
 = 1,820
 \end{array}$$

$$\begin{array}{r}
 (d) \quad 5 \mid 15, 25, 10, 35 \\
 \quad \quad \quad 3, 5, 2, 7 \\
 \text{LCM} = 2 \times 3 \\
 \quad \times 5^2 \times 7 \\
 = 1,050
 \end{array}$$

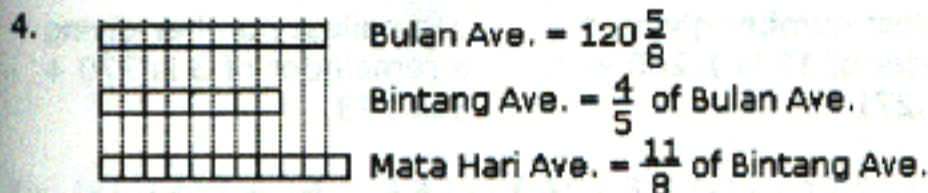
$$3. (a) \quad 72.342 \times 84.5 = 6,112.899$$

$$(b) \quad 11.001 \times 5.428 = 59.713428$$

$$\approx 59.713$$

$$(c) \quad \frac{23}{3} = 7.\bar{6} \approx 7.667$$

$$(d) \quad \frac{103}{17} = 6.0588... \approx 6.059$$



Length of Mata Hari = $\frac{11}{8} \times \frac{4}{5} = \frac{11}{10}$ of Bulan Ave. So Mata Hari is $\frac{1}{10}$ longer than Bulan Ave.

$$\frac{1}{10} \times 120 \frac{5}{8} = \left(\frac{1}{10} \times 120 \right) + \left(\frac{1}{10} \times \frac{5}{8} \right) = 12 \frac{1}{16}$$

The difference in length between Bulan Ave. and Mata Hari Ave. is $12 \frac{1}{16}$ m.

$$5. (a) \quad \begin{array}{r} 6 \quad 2 \quad 3 \\ - 1 \quad 5 \quad 5 \\ \hline - 8 \quad 7 \quad - \end{array}$$

$$\begin{array}{r} 5 \quad 13 \quad 11 \quad 13 \\ - 1 \quad 5 \quad 4 \quad 5 \\ \hline 4 \quad 8 \quad 7 \quad 8 \end{array}$$

$$\begin{array}{r} 6 \quad 4 \quad 2 \quad 3 \\ - 1 \quad 5 \quad 4 \quad 5 \\ \hline 4 \quad 8 \quad 7 \quad 8 \end{array}$$

$$(b) \quad \begin{array}{r} \quad 4 \quad - \\ + 8 \quad 7 \quad 6 \\ \hline 1 \quad 2 \quad - \quad 1 \end{array}$$

$$\begin{array}{r} \quad 3 \quad 5 \quad 5 \\ + 8 \quad 7 \quad 6 \\ \hline 1 \quad 2 \quad 12 \quad 11 \end{array}$$

$$\begin{array}{r} \quad 3 \quad 4 \quad 5 \\ + 8 \quad 7 \quad 6 \\ \hline 1 \quad 2 \quad 2 \quad 1 \end{array}$$

$$6. (a) \quad 11:30 \text{ is } \frac{1}{2} \text{ an hour before noon. } -\frac{1}{2}$$

$$(b) \quad 15:00 \text{ is 3 hours after noon. } +3$$

$$(c) \quad 23:30 \text{ is } 11 \frac{1}{2} \text{ hours after noon. } +11 \frac{1}{2}$$

$$(d) \quad 06:00 \text{ is 6 hours before noon. } -6$$

$$(e) \quad 03:30 \text{ is } 8 \frac{1}{2} \text{ hours before noon. } -8 \frac{1}{2}$$

$$7. (a) \quad -\{[456 - (-122)] \times 4\} - 192 = -\{578 \times 4\} - 192 = -2,312 - 192 = -2,504$$

$$(b) \quad [(-21) - (-221)] \times [(-151) + 162] \times 4 = 200 \times 11 \times 4 = 8,800$$

5. Total distance bus travels in the 3 minutes is the length of the bus plus the length of the tunnel. Let x be the length of the tunnel in m. Then distance traveled = $(8 + x)$ m = $\frac{8+x}{1,000}$ km. 3 minutes = $\frac{3}{60} = \frac{1}{20}$ h
- Distance = Speed \times Time
- $$\frac{8+x}{1,000} = 30 \left(\frac{1}{20} \right)$$
- $$\frac{8+x}{1,000} = \frac{1,500}{1,000}$$
- $$8+x = 1,500$$
- $$x = 1,492$$
- The tunnel is 1,492 m long.
6. Amount increase = \$627 - \$550
= \$77
- Percentage increase = $\frac{77}{550} \times 100\%$
= 14%
- (b) New cost = 95% original cost
- $$95\% \text{ of } 78\text{¢} = \frac{95}{100} \times 78$$
- $$= 74.1$$
- New cost = 74¢ per kg
7. Let s be the speed of the car. Then $16s$ is the speed of the plane.
- distance of car = s km/h \times 1 h = s km
distance for plane = $16s$ km/h \times 1 h = $16s$ km
Total distance = 850 km
- $$s + 16s = 850$$
- $$17s = 850$$
- $$s = 50$$
- Speed of car is 50 km/hr. Since it traveled 1 h, it went 50 km.
8. Let y = the number of years ago that Mary's mother's age was 4 times Mary's age. Mary's age then was $12 - y$ and her mother's age then was $42 - y$. Her mother's age then was 4 times Mary's age:
- $$42 - y = 4(12 - y)$$
- $$42 - y = 48 - 4y$$
- $$3y = 6$$
- $$y = 2$$
- 2 years ago Mary was 10.
9. Total mass of boys = 24×35.5 kg = 852 kg
Total mass of girls = 15×29 kg = 435 kg
Total mass of class = 852 kg + 435 kg = 1,287 kg
- Average mass of class = $\frac{1,287\text{kg}}{39} = 33$ kg
- Mass of new boy = 33 kg + 1.4 kg = 34.4 kg
New total mass of class = 1,287 kg + 34.4 kg = 1,321.4 kg
- New average mass of class = $\frac{1,321.4}{40} = 33.035$ kg

5. Surface area S_W of each inside wall is area of the rectangle.

$$S_W = 2 \text{ m} \times 8 \text{ m} = 16 \text{ m}^2$$

Surface area S_A of internal face of arch is half the internal curved surface of a cylinder.

$$S_A = \frac{1}{2}(2\pi rh)$$

$$= \pi rh$$

$$= (3.14)(1.75)(8) \text{ m}^2$$

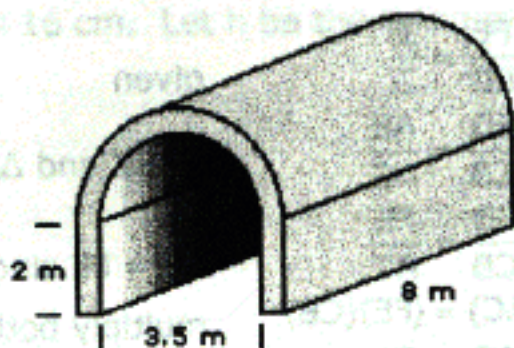
$$= 43.96 \text{ m}^2$$

Total surface area S :

$$S = 2(S_W) + S_A$$

$$= 2(16) + 43.96 \text{ m}^2$$

$$= 75.96 \text{ m}^2$$



6. (a) 1 cm : 20 cm
30 cm : 30 x 20 cm
30 cm : 600 cm
30 cm : 6 m
The boat is 6 m long.

Let h be the length of the mast of the model in meters.

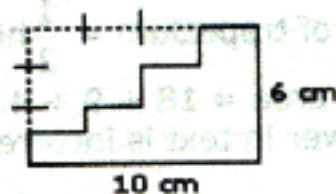
$$\frac{1 \text{ m}}{20 \text{ m}} = \frac{h \text{ m}}{7 \text{ m}}$$

$$20h = 7$$

$$h = 0.35$$

The length of the model's mast is 0.35 m = 35 cm.

7. The "steps" can be moved to form a rectangle. So the perimeter is the same as that of the rectangle.
Perimeter = $2(10 \text{ cm} + 6 \text{ cm})$
 $= 32 \text{ cm}$



8. Area of 4 walls = $4(470 \text{ cm})(210 \text{ cm}) = 394,800 \text{ cm}^2$
 $1 \text{ m}^3 = 10,000 \text{ cm}^3$
 $2.7 \text{ m}^2 = 2.7 \times 10,000 \text{ cm}^2 = 27,000 \text{ cm}^2$
Area that needs to be painted = $394,800 \text{ cm}^2 - 27,000 \text{ cm}^2 = 367,800 \text{ cm}^2$
Let c be the cost in dollars

$$\frac{c}{0.50} = \frac{367,800}{500}$$

$$500c = 183,900$$

$$c = 367.80$$

The cost of painting the walls is \$367.80

9. A tessellating octagon can be derived from a square.
Example:

