#1. $\frac{4}{9} = \sqrt{\frac{16}{81}}$

#4. (a) $\sqrt{56}$
$= \sqrt{2\times2 \times 2\times 7}$
$= 2\sqrt{14}$

(b) $\sqrt[3]{6000}$
$= \sqrt[3]{2\times2\times2 \times 2\times 3 \times 5\times5\times5}$
$= 2\times5 \sqrt[3]{2\times3}$
$= 10 \sqrt[3]{6}$

(c) $\sqrt[5]{64}$
$= \sqrt[5]{2\times2\times2\times2\times2 \times 2}$
$= 2\sqrt[5]{2}$

(d) $\sqrt{48}$
$= \sqrt{2\times2 \cdot 2\times2 \times 3}$
$= 2\times2\sqrt{3}$
$= 4\sqrt{3}$

(e) $\sqrt{48}$
$= \sqrt{2\times2 \cdot 2\times2 \times 3}$

#5. a) $4\sqrt{3}$.

    Already Entire

b) $4^2\sqrt{10}$

$= \sqrt{10 \times 4 \times 4}$

$= \sqrt{160}$

c) $-2\sqrt{14}$

$= -\sqrt{14 \times 2 \times 2}$

$= -\sqrt{56}$

(d) $5\sqrt[3]{8}$

$= \sqrt[3]{8 \times 5 \times 5 \times 5}$

$= \sqrt[3]{1000}$

#6.   Volume $= 23625$.

        same   same   same.

$V = l \times w \times h$.

$\sqrt[5]{23625}$.

$= \sqrt[3]{(3 \times 3 \times 3)(5 \times 5 \times 5) \times 7}$

$= 3 \times 5 \sqrt[3]{7}$

$= 15\sqrt[3]{7}$

#6.   Volume = 23625.

$$V = \overset{\text{same}}{l} \times \overset{\text{same}}{w} \times \overset{\text{same}}{h}.$$

$$\sqrt[3]{23625}.$$

$$= \sqrt[3]{(3 \times 3 \times 3)(5 \times 5 \times 5) \cdot 7}$$

$$= 3 \times 5 \sqrt[3]{7}$$

$$= 15 \sqrt[3]{7}$$

#7.

7 ⊿ ?
    8
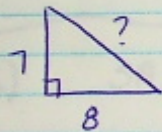
$$a^2 + b^2 = c^2.$$

$$7^2 + 8^2 = c^2.$$

$$49 + 64 = c^2$$

$$\sqrt{113} = \sqrt{c^2}.$$

$$c = \sqrt{113}.$$

#8. a) <u>Small</u>

$a^2 + b^2 = c^2$

$1^2 + 3^2 = c^2$

$1 + 9 = c^2$

$\sqrt{10} = \sqrt{c^2}$

$c = \sqrt{10}$

<u>Large</u>

$a^2 + b^2 = c^2$

$6^2 + 2^2 = c^2$

$36 + 4 = c^2$

$\sqrt{40} = \sqrt{c^2}$

$c = \sqrt{40}$

<u>Ratio</u>

2 to 1

therefore

$2\sqrt{10} = \sqrt{40}$

b)
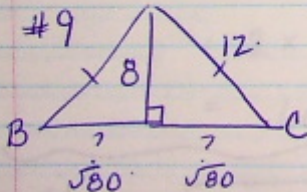
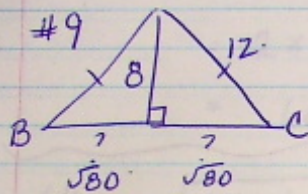$\sqrt{40} = 2\sqrt{10}$

$\sqrt{40} = \sqrt{10 \times 2 \times 2}$

$\sqrt{40} = \sqrt{40}$

#9

$a^2 + b^2 = c^2$

$8^2 + b^2 = 12^2$

$64 + b^2 = 144$

$b^2 = 144 - 64$

$\sqrt{b^2} = \sqrt{80}$

$b = \sqrt{80} \times 2$

$= 2\sqrt{80}$

4

#9

$$a^2 + b^2 = c^2$$
$$8^2 + b^2 = 12^2$$
$$64 + b^2 = 144$$
$$b^2 = 144 - 64$$
$$\sqrt{b^2} = \sqrt{80}$$
$$b = \sqrt{80} \times 2$$

$$= 2\sqrt{80}$$

#10. a) $SA = 5400$

$5400 \div 6 = 900$

$\sqrt{900} = \sqrt{2 \times 2 \times 3 \times 3 \times 5 \times 5}$

$= 2 \times 3 \times 5$

$= 30$

$V = l \times w \times h$

$V = 30 \times 30 \times 30$

$V = 27000 \, cm^3$

(b)   Volume = $\overset{\text{same}}{\underset{\downarrow}{L}} \times \overset{\text{same}}{\underset{\downarrow}{w}} \times \overset{\text{same}}{\underset{\downarrow}{h}}$

$\sqrt[3]{8000}$ = $\sqrt[3]{\underbrace{(2 \times 2 \times 2)}(2 \times 2 \times 2) \times (5 \times 5 \times 5)}$

$\qquad\qquad\qquad$ = $2 \times 2 \times 5$

$\qquad\qquad\qquad$ = 20

$SA = 6(l \times w)$

$\qquad = 6(20 \times 20)$

$\qquad = 2400\,cm^2$

(c) $\sqrt{3600}$

$\sqrt{(2 \times 2)(2 \times 2)(3 \times 3)(5 \times 5)}$

$\qquad = 2 \times 2 \times 3 \times 5$

$\qquad = 60$

$\sqrt{(2\times2)(2\times2)(3\times3)(5\times5)}$

$= 2 \times 2 \times 3 \times 5$

$= 60$

(d) $\sqrt{1764}$

$\sqrt{(2\times2)(3\times3)(7\times7)}$

$= 2 \times 3 \times 7$

$= 42.$
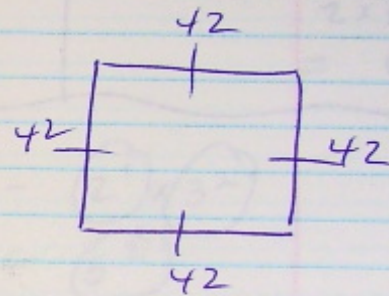
Perimeter $= 42 + 42 + 42 + 42.$

$= 168\ cm.$

42

42   42

42
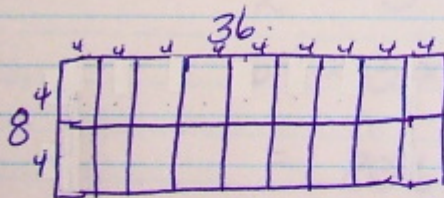
#11.

$8 \rightarrow 2 \times 2 \times 2 = 2^3$

$14 \rightarrow 2 \times 7 = 2^1 \times 7^1$

$2^3 \times 7^1$

$8 \times 7 = \underline{\underline{56 \text{ days}}}$

#12.

GCF

$8 \rightarrow 2 \times 2 \times 2$

$36 \rightarrow 2 \times 2 \times 3 \times 3$

$2 \times 2 = 4$

#13.　a) $220 - 2 \times 2 \times 5 \times 11$
　　　　$484 - 2 \times 2 \times 11 \times 11$
　　　　$988 - 2 \times 2 \times 13 \times 19$.

　　　　　　　　$2 \times 2 = 4$

(b)　$126 - 2 \times 3 \times 3 \times 7$
　　　$546 \quad 2 \times 3 \times 7 \times 13$
　　　$714 \quad 2 \times 3 \times 7 \times 17$
　　　　　$2 \times 3 \times 7$
　　　　$= 42$

#14.　a)　$18 \rightarrow 2 \times 3 \times 3$ 　　$- \quad 2^1 \times 3^2$
　　　　　$25 \rightarrow 5 \times 5$ 　　　　　$- \quad 5^2$
　　　　　$30 \rightarrow 2 \times 3 \times 5$ 　　$- \quad 2^1 \times 3^1 \times 5^1$

　　　　　　$2^1 \times 3^2 \times 5^2$
　　　　　　$2 \times 9 \times 25$
　　　　　　$= 450$