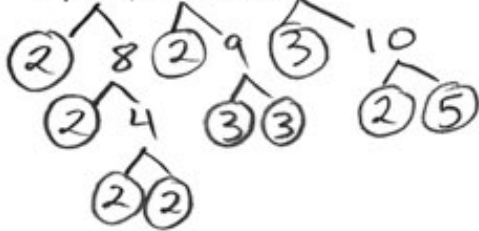




Revision worksheet

1. Find LCM and HCF of the numbers below:

a) 16, 18 and 30



$$16 = 2 \times 2 \times 2 \times 2$$

$$18 = 2 \times 3 \times 3$$

$$30 = 2 \times 3 \times 5$$

$$\text{HCF} = 2$$

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5$$

$$= 720$$

b) 12, 63 and 90



$$12 = 2 \times 2 \times 3$$

$$63 = 3 \times 3 \times 7$$

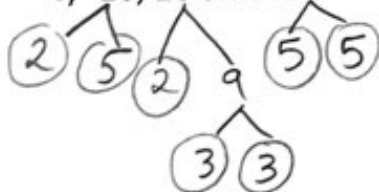
$$90 = 2 \times 3 \times 3 \times 5$$

$$\text{HCF} = 3$$

$$\text{LCM} = 2 \times 2 \times 3 \times 3 \times 5 \times 7$$

$$= 1260$$

c) 10, 18 and 25



$$10 = 2 \times 5$$

$$18 = 2 \times 3 \times 3$$

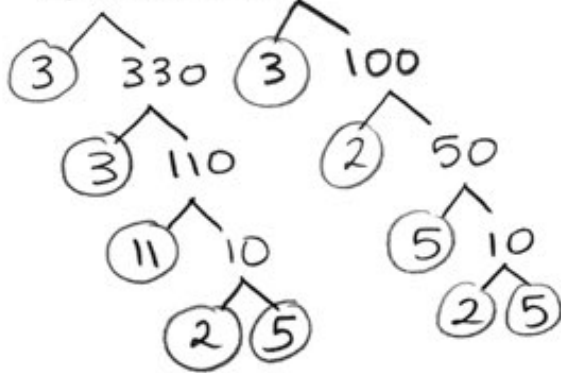
$$25 = 5 \times 5$$

$$\text{HCF} = 1$$

$$\text{LCM} = 2 \times 5 \times 5 \times 3 \times 3$$

$$= 450$$

d) 990 and 300



$$990 = 2 \times 3 \times 3 \times 5 \times 11$$

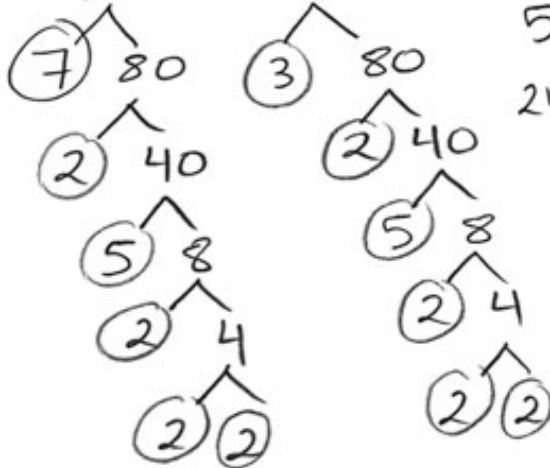
$$300 = 2 \times 2 \times 3 \times 5 \times 5$$

$$\text{HCF} = 2 \times 3 \times 5 = \boxed{30}$$

$$\text{LCM} = 2 \times 2 \times 3 \times 3 \times 5 \times 5 \times 11$$

$$= \boxed{9900}$$

e) 560 and 240



$$560 = 2 \times 2 \times 2 \times 2 \times 5 \times 7$$

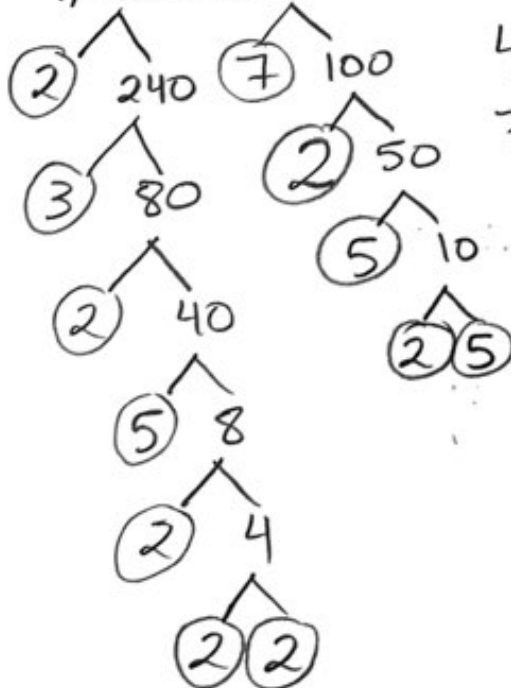
$$240 = 2 \times 2 \times 2 \times 2 \times 3 \times 5$$

$$\text{HCF} = 2 \times 2 \times 2 \times 2 \times 5 = \boxed{80}$$

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 5 \times 3 \times 7$$

$$= \boxed{1680}$$

f) 480 and 700



$$480 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 5$$

$$700 = 2 \times 2 \times 5 \times 5 \times 7$$

$$\text{HCF} = 2 \times 2 \times 5 = \boxed{20}$$

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 5 \times 7$$

$$= \boxed{16800}$$

2. Solve:

$$a) \sqrt{\frac{4}{100}} = \frac{2}{10} = \frac{1}{5}$$

$$b) \sqrt{\frac{16}{81}} = \frac{4}{9}$$

$$c) \sqrt{\frac{9}{25}} = \frac{3}{5}$$

$$d) \sqrt[3]{\frac{8}{125}} = \frac{2}{5}$$

$$e) \sqrt[3]{\frac{64}{1000}} = \frac{4}{10}$$

$$f) \sqrt{0.25} = \sqrt{\frac{25}{100}} = \frac{5}{10} = 0.5$$

$$g) \sqrt{0.64} = \sqrt{\frac{64}{100}} = \frac{8}{10} = 0.8$$

$$h) \sqrt{1.21} = \sqrt{\frac{121}{100}} = \frac{11}{10} = 1.1$$

$$i) \sqrt{0.04} = \sqrt{\frac{4}{100}} = \frac{2}{10} = 0.2$$

$$j) \sqrt[3]{0.008} = \sqrt[3]{\frac{8}{1000}} = \frac{2}{10} = 0.2$$

$$k) \sqrt[3]{0.064} = \sqrt[3]{\frac{64}{1000}} = \frac{4}{10} = 0.4$$

3. A square has a side length of 0.3 m, find it's area.

$$\begin{aligned}\text{Area} &= L \times W \\ &= 0.3 \times 0.3 \\ &= \boxed{0.09 \text{ m}^2}\end{aligned}$$

4. A square has an area of 0.09 m², what is the side length?

$$\begin{aligned}\text{side length} &= \sqrt{0.09} \\ &= \sqrt{\frac{9}{100}} = \frac{3}{10} = \boxed{0.3 \text{ m}}\end{aligned}$$

5. The side length of a cube is 0.4 cm, what is the volume?

$$\begin{aligned}\text{Volume} &= L \times W \times h \\ &= 0.4 \times 0.4 \times 0.4 \\ &= \boxed{0.064 \text{ cm}^3}\end{aligned}$$

6. A cube has a volume of 0.125 m³, what is the side length?

$$\begin{aligned}\text{side length} &= \sqrt[3]{0.125} \\ &= \sqrt[3]{\frac{125}{1000}} = \frac{5}{10} = \boxed{0.5 \text{ m}}\end{aligned}$$

7. Workout:

$23 \times 0.01 =$ $= 23 \times \frac{1}{100}$ $= 23 \div 100 = \boxed{0.23}$	$4.5 \times 0.01 =$ $= 4.5 \times \frac{1}{100}$ $= 4.5 \div 100$ $= \boxed{0.045}$	$1.64 \times 0.1 =$ $= 1.64 \times \frac{1}{10}$ $= 1.64 \div 10$ $= \boxed{0.164}$
$0.78 \times 0.1 =$ $= 0.78 \times \frac{1}{10}$ $= 0.78 \div 10$ $= \boxed{0.078}$	$1.5 \times 0.4 =$ $= 15 \times 4 = 60$ Then put decimal point back $\boxed{0.6}$	$8.9 \times 0.12 =$ $= \boxed{1.068}$
$1.25 \times 0.54 =$ $\begin{array}{r} 1.25 \\ \times 0.54 \\ \hline 500 \\ 6250 \\ \hline 6750 \end{array}$ $= \boxed{0.675}$	$56 \div 0.1 =$ $= 56 \div \frac{1}{10}$ use KCF $\Rightarrow 56 \times 10$ $= \boxed{560}$	$4.6 \div 0.01 =$ $= 4.6 \div \frac{1}{100}$ $= 4.6 \times 100$ $= \boxed{460}$
$8.26 \div 0.01 =$ $= 8.26 \div \frac{1}{100}$ $= 8.26 \times 100$ $= \boxed{826}$	$84 \div 0.04 =$ $\begin{array}{cc} \times 100 & \times 100 \\ \hline 8400 \div 4 \\ \hline \end{array}$ $= \boxed{2100}$	$2.4 \div 0.12 =$ $\begin{array}{cc} \times 100 & \times 100 \\ \hline 240 \div 12 \\ \hline \end{array}$ $= \boxed{20}$
$8.1 \div 0.09 =$ $\begin{array}{cc} \times 100 & \times 100 \\ \hline 810 \div 9 \\ \hline \end{array}$ $= \boxed{90}$	$0.25 \div 0.005 =$ $\begin{array}{cc} \times 1000 & \times 1000 \\ \hline 250 \div 5 \\ \hline \end{array}$ $= \boxed{50}$	$0.0642 \div 0.02 =$ $= 6.42 \div 2$ $= \boxed{3.21}$ $\begin{array}{r} 2 \overline{) 6.42} \\ \underline{-6} \\ 04 \\ \underline{-4} \\ 02 \\ \underline{-2} \\ 0 \end{array}$

8. Complete:

$ \begin{array}{r} 0.428571 \\ 7 \overline{)30} \\ \underline{-28} \\ 20 \\ \underline{-14} \\ 60 \\ \underline{-56} \\ 40 \\ \underline{-35} \\ 50 \\ \underline{-49} \\ 10 \\ \underline{7} \\ 30 \text{ Repeat} \end{array} $	$\frac{3}{7}$	$0.\dot{4}2857\dot{1}$
	$\frac{6 \div 3}{9 \div 3} = \frac{2}{3}$	$0.\dot{6}$
	$1 \frac{9 \times 5}{20 \times 5} = 1 \frac{45}{100}$	1.45
	$\frac{63 \div 9}{99 \div 9} = \frac{7}{11}$	$0.\dot{6}\dot{3}$
	$\frac{81 \div 9}{990 \div 9} = \frac{9}{110}$	$0.0\dot{8}\dot{1}$

9. Workout:

a. Increase \$8.2 by 40%.

① $40 + 100 = 140\%$

② $\frac{140}{100} \times 8.2 = \frac{114.8}{10} = \boxed{\$11.48}$

b. Decrease 50.5 kg by 25%.

① $100 - 25 = 75\%$

② $\frac{75}{100}$ of 50.5 = $\frac{37.875}{100} = \boxed{37.875 \text{ kg}}$

c. A 35% markup on a computer worth \$220.

① $100 + 35 = 135\%$

② $\frac{135}{100}$ of 220 = $\frac{2970}{100} = \boxed{\$297}$

d. A 6% sale on a shirt worth \$42.

① $\frac{6}{100}$ of 42 = $\frac{252}{100} = \$2.52$ (the decrease)

② New price $\Rightarrow 42 - 2.52 = \boxed{\$39.48}$

There are 2 methods, both are acceptable

Use cancellation where possible! In multiplication of course! ☺

10. Workout:

$2 \frac{10}{1} \times \frac{2}{8} = \boxed{4}$	$18 \div \frac{6}{7} = \frac{18}{1} \times \frac{7}{6}$ $= 3 \times 7 = \boxed{21}$
$7 \frac{9}{14} \times \frac{2}{3} = \frac{3}{7} \times \frac{1}{1}$ $= \boxed{\frac{3}{7}}$	$-12 \times 2 \frac{3}{4}$ $= -12 \times \frac{11}{4} = \boxed{-33}$
$7 \div -1 \frac{2}{5}$ <p>K.C.F</p> $= 7 \div -\frac{7}{5} = \frac{1}{7} \times -\frac{5}{7}$ $= \boxed{-5}$	$\frac{18}{35} \div \frac{3}{5} = \frac{18}{35} \times \frac{5}{3}$ $= \boxed{\frac{6}{7}}$

11. Workout:

a. Mickey has read three-fifth of his 75 pages book. How many more pages he needs to read to complete his book?

* He read $\frac{3}{5}$ of 75 = 45 pages

* He has left = $75 - 45 = \boxed{30 \text{ pages}}$

b. Tom bought $2\frac{1}{5}$ L milk on Monday and $1\frac{2}{10}$ L on Tuesday. How much milk did he buy in two days?

$$2\frac{1}{5} + 1\frac{2}{10}$$

$$= \frac{2 \times 11}{2 \times 5} + \frac{12}{10}$$

$$= \frac{22}{10} + \frac{12}{10} = \frac{34}{10} = 3 \frac{4 \div 2}{10 \div 2} = \boxed{3\frac{2}{5} \text{ L}}$$

- c. Jerry bought $3\frac{5}{7}$ Kg of cheese and used $1\frac{1}{3}$ Kg. How much cheese is left?

$$3\frac{5}{7} - 1\frac{1}{3} = \frac{26 \times 3}{7 \times 3} - \frac{4 \times 7}{3 \times 7}$$

$$= \frac{78}{21} - \frac{28}{21} = \frac{50}{21} = \boxed{2\frac{8}{21} \text{ Kg}}$$

- d. Ben bought $1\frac{4}{7}$ Kg banana on Monday and $2\frac{2}{6}$ Kg of apple on Tuesday. What is the total quantity of fruits Ben bought?

$$1\frac{4}{7} + 2\frac{2}{6} = \frac{6 \times 11}{6 \times 7} + \frac{14 \times 7}{6 \times 7}$$

$$= \frac{66}{42} + \frac{98}{42} = \frac{164}{42 \div 2} = \frac{82}{21} = \boxed{3\frac{19}{21} \text{ Kg}}$$

- e. Tia bought 0.35m cloth at the cost of \$4.5 per meter. How much amount did he pay?

$$4.5 \times 0.35 = \$1.575$$

$$\approx \boxed{\$1.58}$$

$$\begin{array}{r} 35 \\ \times 45 \\ \hline 175 \\ + 1400 \\ \hline 1575 \end{array}$$

- f. In a high school contest, Ross jumped $3\frac{8}{9}$ m and Joy jumped $4\frac{1}{3}$ m. Who jumped more height and by how much more?

* Joy jumped higher

$$* 4\frac{1}{3} - 3\frac{8}{9} = \frac{13 \times 3}{3 \times 3} - \frac{35}{9}$$

$$= \frac{39}{9} - \frac{35}{9}$$

$$= \frac{3 \div 3}{9 \div 3} = \boxed{\frac{1}{3} \text{ m}}$$

13. Workout:

$$6 \times \left(\frac{3}{x^4} - \frac{9}{24} \right) \times \left(\frac{2x^6}{3x^6} + \frac{5x^3}{6x^3} + \frac{7}{18} \right) =$$

$$\left(\frac{18}{24} - \frac{9}{24} \right) \times \left(\frac{12}{18} + \frac{15}{18} + \frac{7}{18} \right) =$$

$$= \frac{1}{12} \times \frac{34}{18}$$

$$= \frac{1}{12} \times \frac{17}{9}$$

$$= \boxed{\frac{17}{24}}$$

$$\sqrt{100} + (7 - 10)^3 \div 9 - 12 =$$

$$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$$

$$10 + (-3)^3 \div 9 - 12$$

$$= 10 + -27 \div 9 - 12$$

$$= 10 - 3 - 12$$

$$= 7 - 12$$

$$= \boxed{-5}$$

14. Round:

a. 0.0123 to 2 s.f. 0.012

b. 25460 to 1 s.f. 30000

c. 98761 to 3 s.f. 98800

d. 1.70826 to 4 s.f. 1.708

e. 303457 to 4 s.f. 303500

f. 0.000749 to 2 s.f. 0.00075

15. Simplify leaving your answer in index notation:

a. $5^2 \times 5^4 \times 5 = 5^7$

b. $a^2 \times a^4 = a^6$

c. $7^{10} \div 7^4 = 7^6$

d. $b^8 \div b^6 = b^2$

e. $8a^7 \div 4a^3 = 2a^4$

f. $5c^2 \times 3c^5 = 15c^7$

g. $\frac{6^{15}}{6^{10}} = 6^5$

h. $(\frac{1}{2})^0 = 1$

16. Use a ratio to compare these quantities:

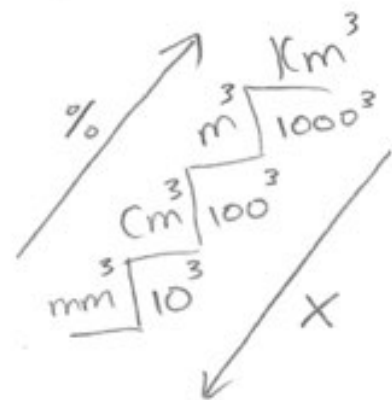
a. $1.5 \text{ m}^3; 20000 \text{ cm}^3$

$\downarrow \times 100^3$

$\div 10000 \left\{ 1500000 : 20000 \right. \left. \right\} \div 10000$

$\div 2 \left\{ 150 : 20 \right. \left. \right\} \div 2$

$\boxed{75 : 2}$



b. $4 \text{ cm}^2; 240 \text{ mm}^2$

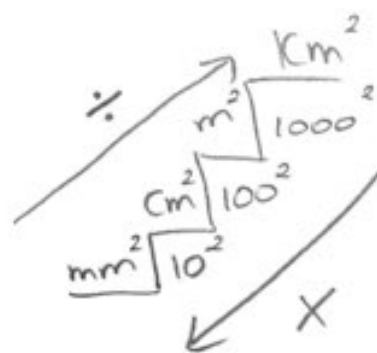
$\downarrow \times 10^2$

$\div 10 \left\{ 400 : 240 \right. \left. \right\} \div 10$

$\div 4 \left\{ 40 : 24 \right. \left. \right\} \div 4$

$\div 2 \left\{ 10 : 6 \right. \left. \right\} \div 2$

$\boxed{5 : 3}$



c. $0.36 \text{ m}^3; 81000 \text{ cm}^3$

$\downarrow \times 100^3$

$$\div 1000 \left\{ 360000 : 81000 \right\} \div 1000$$

$$\div 9 \left\{ 360 : 81 \right\} \div 9$$
$$\boxed{40 : 9}$$

d. $4.8 \text{ km}^2; 960000 \text{ m}^2$

$\downarrow \times 1000^2$

$$\div 10000 \left\{ 4800000 : 960000 \right\} \div 10000$$

$$\div 3 \left\{ 480 : 96 \right\} \div 3$$

$$\div 16 \left\{ 160 : 32 \right\} \div 16$$

$$\div 2 \left\{ 10 : 2 \right\} \div 2$$

$$\boxed{5 : 1}$$

e. 2 weeks; 20 days

$$\div 2 \left\{ 14 : 20 \right\} \div 2$$
$$\boxed{7 : 10}$$

f. 3 hours; 500 minutes

$$\div 10 \left\{ 180 : 500 \right\} \div 10$$

$$\div 2 \left\{ 18 : 50 \right\} \div 2$$
$$\boxed{9 : 25}$$

g. 6: four dozen

$$\begin{array}{l} \div 6 \left(6 : 48 \right) \div 6 \\ \boxed{1 : 8} \end{array}$$

h. 3.5 t: 5500 kg

$$\begin{array}{l} \downarrow \times 1000 \\ \div 100 \left(3500 : 5500 \right) \div 100 \\ \div 5 \left(35 : 55 \right) \div 5 \\ \boxed{7 : 11} \end{array}$$

i. 4 litres: 6400 ml

$$\begin{array}{l} \downarrow \times 1000 \\ \div 100 \left(4000 : 6400 \right) \div 100 \\ \div 4 \left(40 : 64 \right) \div 4 \\ \div 2 \left(10 : 16 \right) \div 2 \\ \boxed{5 : 8} \end{array}$$

17. Share among A, B and C:

a. 60 chocolates in the ratio 3:2:7

- ① $3+2+7 = 12$ parts
 - ② $60 \div 12 = 5$ chocolates per part
 - ③ $A \Rightarrow 3 \times 5 = 15$ chocolates
 $B \Rightarrow 2 \times 5 = 10$ chocolates
 $C \Rightarrow 7 \times 5 = 35$ chocolates
- To check
 $15 + 10 + 35 = 60$ chocolates

b. \$420 in the ratio 1:2:4

- ① $1+2+4 = 7$ parts
 - ② $420 \div 7 = \$60$ per part
 - ③ $A \Rightarrow 1 \times 60 = \60
 $B \Rightarrow 2 \times 60 = \120
 $C \Rightarrow 4 \times 60 = \240
- To check
 $60 + 120 + 240 = \$420$

c. 2.7 kg in the ratio 1:3:6

- ① $1+3+6 = 10$ parts
- ② $2.7 \div 10 = 0.27$ Kg per part
- ③ $A \Rightarrow 1 \times 0.27 = 0.27$ Kg
 $B \Rightarrow 3 \times 0.27 = 0.81$ Kg
 $C \Rightarrow 6 \times 0.27 = 1.62$ Kg } add to check

d. \$34.20 in the ratio 4:1:7

- ① $4+1+7 = 12$ parts
- ② $34.20 \div 12 = \$2.85$ per part
- ③ $A \Rightarrow 4 \times 2.85 = \11.40
 $B \Rightarrow 1 \times 2.85 = \2.85
 $C \Rightarrow 7 \times 2.85 = \19.95 } add to check

$$\begin{array}{r} 2.85 \\ 12 \overline{) 34.2} \\ \underline{24} \\ 102 \\ \underline{-96} \\ 60 \\ \underline{-60} \\ 0 \end{array}$$

