المدرسة الوطنية الأرثوذكسية الشميساني

The National Orthodox School Shmaisani

Revision Sheet | Lower Secondary Stage (6-8)

1st Semester | 2023-2024

Subject: Math **Chapter:** 1, 6, 9 and 12

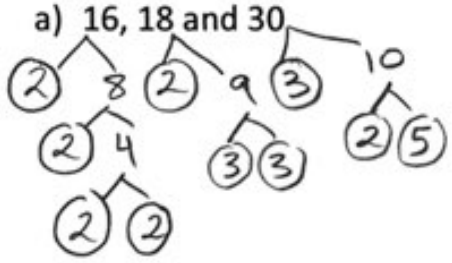
Objectives:

- To review the material covered in chapter 1, 6, 9 and 12.

---

1. Find LCM and HCF of the numbers below:

a) 16, 18 and 30



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

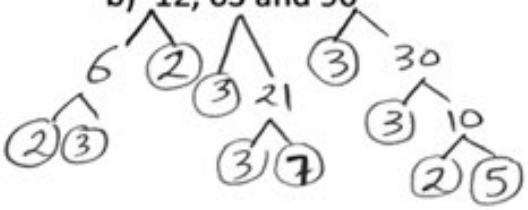
$18 = 2 \times 3 \times 3$

$30 = 2 \times 3 \times 5$

HCF = 2

LCM = $2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 720$

b) 12, 63 and 90



$12 = 2 \times 2 \times 3$

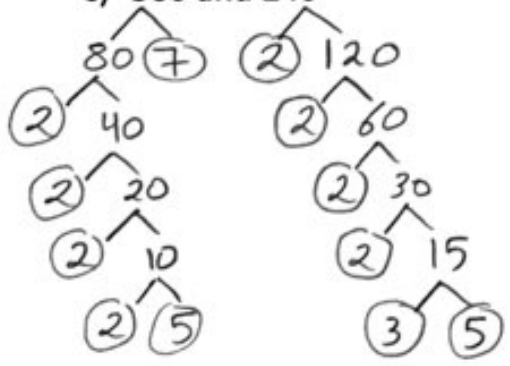
$63 = 3 \times 3 \times 7$

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

HCF = 3

LCM = $2 \times 2 \times 3 \times 3 \times 5 \times 7 = 1260$

c) 560 and 240



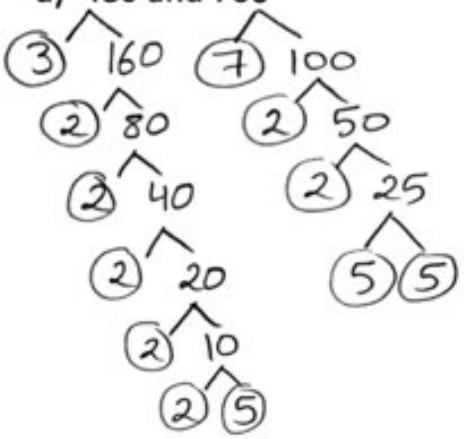
$560 = 2 \times 2 \times 2 \times 2 \times 5 \times 7$

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

HCF = $2 \times 2 \times 2 \times 2 \times 5 = 80$

LCM = $2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 7 = 1680$

d) 480 and 700



$480 = 2\times2\times2\times2\times2\times3\times5$

$700 = 2\times2\times5\times5\times7$

$HCF = 2\times2\times5 = \boxed{20}$

$LCM = 2\times2\times2\times2\times2\times3\times5\times5\times7$

$= \boxed{16800}$

2. Solve:

a) $\sqrt{\frac{4}{100}} = \boxed{\pm\frac{2}{10}}$

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

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

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

e) $\sqrt[3]{\frac{64}{1000}} = \frac{4}{10} = \boxed{\frac{2}{5}}$

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

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

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

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

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

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

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

Area = Length x width
$= 0.3 \times 0.3$
$= \boxed{0.09\ m^2}$

4. A square has an area of 0.09 m^2, what is the side length?

Side length = $\sqrt{\text{Area}}$
$= \sqrt{0.09}$
$= \sqrt{\frac{9}{100}} = \frac{3}{10} = \boxed{0.3\ m}$

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

Volume = Length x width x height
$= 0.4 \times 0.4 \times 0.4 = \boxed{0.064 cm^3}$

6. A cube has a volume of 0.125 m^3, what is the side length?

Side length $= \sqrt[3]{\text{volume}}$

$= \sqrt[3]{0.125} = \sqrt[3]{\frac{125}{1000}} = \frac{5}{10} =$ **0.5 m**

7. Complete this table of equivalent fractions and decimals, write each fraction in its simplest form:

Fraction	Decimal
$\frac{3}{7}$	$0.\dot{4}2857\dot{1}$
$\frac{6 \div 3}{9 \div 3} = \frac{2}{3}$	$0.\dot{6}$
$1\frac{9 \times 5}{20 \times 5} = 1\frac{45}{100}$	1.45
$\frac{63 \div 9}{99 \div 9} = \frac{7}{11}$	$0.\dot{6}\dot{3}$
$\frac{81 \div 9}{990 \div 9} = \frac{9}{110}$	$0.08\dot{1}$

$$
\begin{array}{r}
0.428571\ldots \\
7\overline{)\,30} \\
-28 \\
\hline
20 \\
-14 \\
\hline
60 \\
-56 \\
\hline
40 \\
-35 \\
\hline
50 \\
-49 \\
\hline
10 \\
7 \\
\hline
30
\end{array}
$$

8. Workout:

$23 \times 0.01 =$ 0.23	$4.5 \times 0.01 =$ 0.045	$1.64 \times 0.1 =$ 0.164
$0.78 \times 0.1 =$ 0.078	$1.5 \times 0.4 =$ 15 × 4 0.60 Answer = 0.6	$8.9 \times 0.12 =$ 89 × 12 178 + 890 1068 Answer = 1.068
$1.25 \times 0.54 =$ 125 × 54 500 6250 6750 Answer = 0.6750	$56 \div 0.1 =$ ×10 ×10 560 ÷ 1 = 560	$4.6 \div 0.01 =$ ×100 ×100 460 ÷ 1 = 460
$8.26 \div 0.01 =$ ×100 ×100 826 ÷ 1 = 826	$84 \div 0.04 =$ ×100 ×100 8400 ÷ 4 = 2100	$2.4 \div 0.12 =$ ×100 ×100 240 ÷ 12 = 20
$8.1 \div 0.09 =$ ×100 ×100 810 ÷ 9 = 90	$0.25 \div 0.005 =$ ×1000 ×1000 250 ÷ 5 = 50	$0.0642 \div 0.02 =$ ×100 ×100 6.42 ÷ 2 = 3.21

9. Workout:

a. Increase \$8.2 by 40%.

$8.2 \times \frac{140}{100} = \frac{1148}{100} = \boxed{\$11.48}$

b. Decrease 50.5 kg by 25%.

$50.5 \times \frac{75}{100} = \frac{3787.5}{100} = \boxed{37.875\ Kg}$

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

$220 \times \frac{135}{100} = \frac{2970}{10} = \boxed{\$297}$

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

$42 \times \frac{94}{100} = \frac{3948}{100} = \boxed{\$39.48}$

10. Workout:

$10 \times \frac{2}{5} = \boxed{4}$	$18 \div \frac{6}{7} = \frac{3}{18} \times \frac{7}{6_1} = 3 \times 7 = \boxed{21}$
$\frac{3}{7}\frac{9}{14} \times \frac{2}{3_1} = \boxed{\frac{3}{7}}$	$-12 \times 2\frac{3}{4} = -\frac{3}{12} \times \frac{11}{4_1} = \boxed{-33}$ KCF
$7 \div -1\frac{2}{5} = 7 \div -\frac{7}{5} = \frac{1}{7} \times \frac{5}{-7_1} = \boxed{-5}$	$\frac{18}{35} \div \frac{3}{5} = \frac{\overset{6}{18}}{\underset{7}{35}} \times \frac{5^1}{3_1} = \boxed{\frac{6}{7}}$

11. Answer the questions below:

a. Mickey has read three-fifth of his 75 pages book. How many more pages does he have left to finish his book?

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

Pages left $75 - 45 =$ **30 pages**

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

$3\frac{5\times3}{7\times3} - 1\frac{1\times7}{3\times7}$

$3\frac{15}{21} - 1\frac{7}{21} =$ **$2\frac{8}{21}$ Kg**

c. Tia bought 2.35 m cloth at the cost of $4.5 per meter. How much did she pay in total?

$2.35 \times 4.5 =$ **\$10.575**

=\$ 10.58 to d.p

$$\begin{array}{r} {}^{1}2^{2}35 \\ \times\ 45 \\ \hline 1175 \\ +\ 9400 \\ \hline 10575 \end{array}$$

d. In a high school contest, Ross jumped $1\frac{4}{7}$ m and Joy jumped $3\frac{2}{6}$ m. How much higher did Joy jump than Ross?

When the first fraction is less than the second fraction, change to improper fractions or borrow from the whole

$3\frac{2\times7}{6\times7} - 1\frac{4\times6}{7\times6}$

$3\frac{14}{42} - 1\frac{24}{42}$

$2\frac{56}{42} - 1\frac{24}{42}$

$= 1\frac{32\div2}{42\div2} =$ **$1\frac{16}{21}$ m**

e. Bunny bought $2\frac{2}{5}$kg of strawberry, $3\frac{2}{3}$kg of blackberry and the rest are blueberry. If she bought 8 kg of fruits in total, how much blueberry did she buy?

Step 1 $2\frac{2\times3}{5\times3}+3\frac{2\times5}{3\times5}$

$=2\frac{6}{15}+3\frac{10}{15}=5\frac{16}{15}=6\frac{1}{15}$ kg

($\frac{16}{15}=1\frac{1}{15}$)

Step 2 $8-6\frac{1}{15}$

$7\frac{15}{15}-6\frac{1}{15}=1\frac{14}{15}$ kg

f. A pen is priced \$1.45, what is the total cost of buying 12 pens?

$1.45\times12=\$17.40$

$$\begin{array}{r} 145 \\ \times\ 12 \\ \hline 290 \\ +1450 \\ \hline 1740 \end{array}$$

g. The area of a rectangle is 5.42 cm^2. If the length is 0.4 cm, what is the width?

Area = length x width

$5.42 = 0.4 \times$ width

width $= 5.42 \div 0.4$ (×10, ×10)

$= 54.2 \div 4$

$= 13.55$cm

$$\begin{array}{r} 13.55 \\ 4\overline{)54.2} \\ -4\downarrow \\ \hline 14 \\ -12\downarrow \\ \hline 22 \\ -20 \\ \hline 20 \\ -20 \\ \hline 0 \end{array}$$

h. I have 16 JDs, how many friends can I give if I give each person $1\frac{3}{5}$JDs?

$16 \div \frac{8}{5} = \cancel{16}^{2} \times \frac{5}{\cancel{8}_{1}} =$ **10 friends**

i. Kitty's mother bought $5\frac{3}{4}$kg of cookies and her father bought $1\frac{9}{20}$kg of cookies. What is the total weight of cookies that Kitty has?

$5\ \frac{3\times5}{4\times5} + 1\ \frac{9}{20}$

$5\frac{15}{20} + 1\frac{9}{20} = 6\frac{24}{20} = 7\frac{4}{20} =$ **$7\frac{1}{5}$ kg**

12. Find the value of the missing variable:

$2\frac{4}{18} + 3\frac{a}{9} = 5\frac{2}{3}$

To find the unknown

$5\ \frac{2\times6}{3\times6} - 2\frac{4}{18}$

$5\frac{12}{18} - 2\frac{4}{18} = 3\frac{8\div2}{18\div2}$

$= 3\frac{4}{9}$

Therefore **$a = 4$**

$4\frac{b}{4} - 2\frac{7}{12} = 1\frac{2}{3}$

$2\ \frac{7}{12} + 1\ \frac{2\times4}{3\times4}$

$2\ \frac{7}{12} + 1\ \frac{8}{12} = 3\frac{15}{12}$

$= 4\ \frac{3\div3}{12\div3}$

$= 4\frac{1}{4}$

Therefore **$b = 1$**

13. Workout:

$(\frac{3}{4}-\frac{9}{24})\times(\frac{2}{3}+\frac{5}{6}+\frac{7}{18})=$	$\sqrt{100}+(7-10)^3\div 9-12=$
$(\frac{18}{24}-\frac{9}{24})\times(\frac{12}{18}+\frac{15}{18}+\frac{7}{18})$ $\frac{1}{12}\frac{9}{24}\times\frac{34^{17}}{18_2}=\boxed{\frac{17}{24}}$	$\sqrt{100}+(-3)^3\div 9-12$ $10+-27\div 9-12$ $10+-3-12$ $10-3-12=\boxed{-5}$

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 4s.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. $1.5\ m^3; 20000\ cm^3$

$150\phi\phi\phi : 2\phi\phi\phi\phi$ (÷2, ÷2)

$75:1$

b. $4\ cm^2; 240\ mm^2$

$40\phi : 24\phi$ (÷4, ÷4)

$10:6$ (÷2, ÷2)

$5:3$

c. $0.36\ m^3; 81000\ cm^3$

$360000 : 81000$ (÷9, ÷9)

$40 : 9$

d. $4.8\ km^2; 960000\ m^2$

$4800000 : 960000$ (÷12, ÷12)

$40 : 8$ (÷8, ÷8)

$5 : 1$

e. $2\ weeks; 20\ days$

$14 : 20$ (÷2, ÷2)

$7 : 10$

f. 3 hours ; 500 minutes

$180 : 500$ (÷2, ÷2)

$9 : 25$

g. 6: four dozen

÷6 (6 : 48) ÷6

1 : 8

h. 3.5 t: 5500 kg

÷5 (3500 : 5500) ÷5

7 : 11

i. 4 litres: 6400 ml

÷4 (4000 : 6400) ÷4

÷2 (10 : 16) ÷2

5 : 8

17. Share among A, B and C:

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

① 3+2+7 = 12 shares

② 60 ÷ 12 = 5 chocolate per share

③ A ⇒ 5x3 = 15 chocolate
B ⇒ 5x2 = 10 chocolate
C ⇒ 5x7 = 35 chocolate

To check
15+10+35 = 60 chocolates

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

① 1+2+4 = 7 shares

② 420 ÷ 7 = $60 per share

③ A ⇒ $60
B ⇒ 60x2 = $120
C ⇒ 60x4 = $240

To check
60+120+240 = $420

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

① 1+3+6 = 10 shares
② 2.7 ÷ 10 = 0.27 kg per share
③ A ⇒ 0.27 kg
B ⇒ 0.27 × 3 = 0.81 kg
C ⇒ 0.27 × 6 = 1.62 kg

To check
0.27 + 0.81 + 1.62
= 2.7 kg

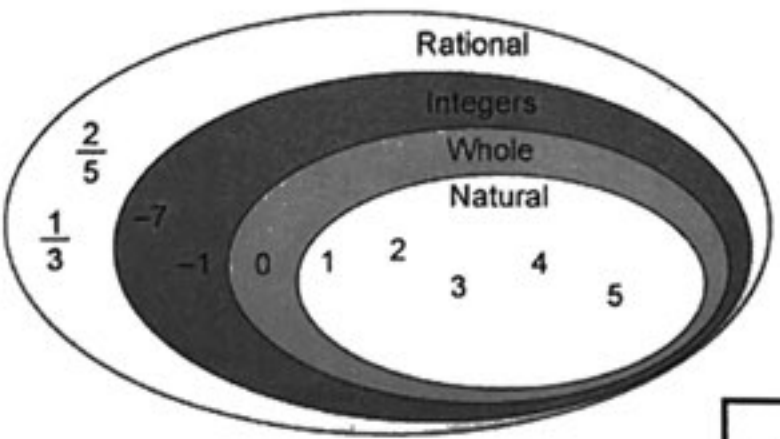
d. $34.20 in the ratio 4:1:7

① 4+1+7 = 12 shares
② 34.20 ÷ 12 = $2.85 per share
③ A ⇒ 4 × 2.85 = $11.40
B ⇒ $2.85
C ⇒ 7 × 2.85 = $19.95

To check
19.95 + 2.85 + 11.40
= $34.20

18. True or false:

a. 3.25 is an integer. (False)
b. −5 is a whole number. (False)
c. $\frac{2}{3}$ is a rational number. (True)
d. 6 is a natural number. (True)
e. −12 is an integer. (True)



Good luck studying for your final exam!