

## question 1 : fractions

1.1) Label each of the following types of fractions.

a)  $\frac{3}{8}$  : proper fraction      b)  $\frac{6}{2}$  : improper fractionc)  $3\frac{1}{4}$  : mixed number

1.2) Give two equivalent fractions for each of the following.

a)  $\frac{3}{8}$  :  $\frac{6}{16}$  ;  $\frac{9}{24}$ b)  $\frac{3}{4}$  :  $\frac{6}{8}$  ;  $\frac{9}{12}$ c)  $\frac{1}{6}$  :  $\frac{2}{12}$  ;  $\frac{3}{18}$ d)  $\frac{2}{3}$  :  $\frac{4}{6}$  ;  $\frac{6}{9}$ 

1.3) Complete the equivalent fractions.

a)  $\frac{2}{8} = \frac{1}{4}$

b)  $\frac{15}{20} = \frac{3}{4}$

c)  $\frac{4}{18} = \frac{2}{9}$

d)  $\frac{25}{75} = \frac{1}{3}$

1.4) Count in  $\frac{1}{6}$ 's from 4 to 6.4 ;  $4\frac{1}{6}$  ;  $4\frac{2}{6}$  ;  $4\frac{3}{6}$  ; 5 ;  $5\frac{1}{6}$  ;  $5\frac{2}{6}$  ;  $5\frac{3}{6}$  ; 61.5) Compare the fractions by using in the correct sign :  $<$  ;  $>$  or  $=$ 

a)  $\frac{4}{16} \underline{>} \frac{3}{15}$

b)  $\frac{2}{7} \underline{<} \frac{3}{8}$

c)  $\frac{5}{9} \underline{>} \frac{1}{4}$

1.6) Arrange in descending order.

$$\frac{1}{4} ; \frac{3}{5} ; \frac{2}{2} ; \frac{4}{5} ; \frac{1}{3}$$

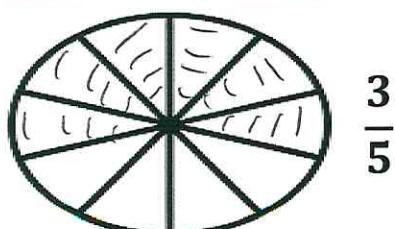
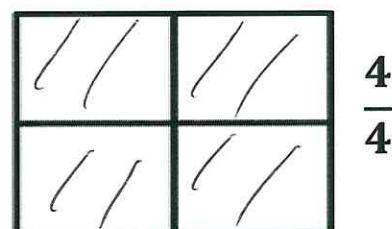
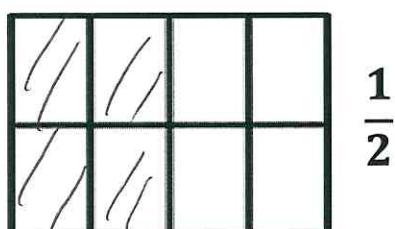
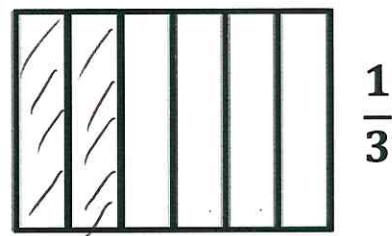
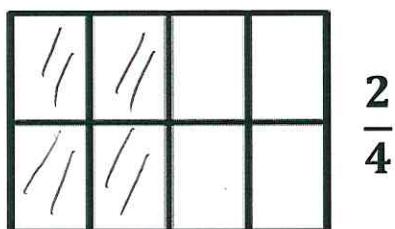
$$\underline{\frac{2}{2} ; \frac{4}{5} ; \frac{3}{5} ; \frac{1}{3} ; \frac{1}{4}}$$

1.7) Arrange in ascending order.

$$2. \frac{2}{4} ; \frac{4}{5} ; \frac{1}{2} ; \frac{7}{9} ; \frac{5}{3}$$

$$\underline{\frac{2}{4} ; \frac{1}{2} ; \frac{7}{9} ; \frac{4}{5} ; \frac{5}{3}}$$

1.8) Colour the correct fractional part.



1.9) Complete the following.

a)  $\frac{2}{3}$  OF 90

$= (90 \div 3) \times 2$

$= 30 \times 2$

$= 60$

b)  $\frac{4}{5}$  OF 450

$= (450 \div 5) \times 4$

$= 9 \times 4$

$= 360$

c)  $\frac{6}{7}$  OF 84

$= (84 \div 7) \times 6$

$= 12 \times 6$

$= 72$

d)  $\frac{9}{10}$  OF 110

$= (110 \div 10) \times 9$

$= 11 \times 9$

$= 99$

1.10) problem solving with OF equations

a) Rika has 110 sweets. She hands out  $\frac{3}{5}$  of it at school. How many sweets does she

have left?

$\frac{2}{5}$ of 110 $= (110 \div 5) \times 2$ $= 44$ sweets left	or $110 - \left( \frac{3}{5} \text{ of } 110 \right)$ $= 110 - (110 \div 5) \times 3$ $= 110 - 66$ $= 44$
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b) Mika buys 96 soft drinks.  $\frac{1}{3}$  of which is Coke, 15 is Fanta. How many will be Crème Soda?

$\frac{1}{3}$ of 96 $= 96 \div 3$ $= 32$ coke	$96 - 32 - 15$ $= 64 - 15$ $= 49$ is crème soda
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c) There are 450 balls in the box.  $\frac{4}{5}$  has already been inflated. How many balloons still need to be inflated?

$\frac{1}{5}$ of 450 $= (450 \div 5) \times 1$ $= 90$ need to be inflated	or	$450 - \left( \frac{4}{5} \text{ of } 450 \right)$ $= 450 - (450 \div 5) \times 4$ $= 450 - (90 \times 4)$ $= 450 - 360$ $= 90$
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d) Riaan bought 320 bags.  $\frac{1}{4}$  is blue,  $\frac{3}{8}$  is yellow and the rest are pink. How many pink bags are there?  $\frac{1}{4} = \frac{2}{8}$   $\frac{2}{8} + \frac{3}{8} = \frac{5}{8}$

$\frac{3}{8}$ of 320 $= (320 \div 8) \times 3$ $= 40 \times 3$ $= 120$ are pink	or	$\frac{1}{4}$ of 320 $= 320 \div 4$ $= 80$	$\frac{3}{8}$ of 320 $= (320 \div 8) \times 3$ $= 40 \times 3$ $= 120$
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$320 - 80 - 120$   
 $= 120$  are pink

1.11) Convert the improper fractions to mixed numbers.

a)  $\frac{45}{7}$

$= 45 \div 7$

$= 6 \frac{3}{7}$

b)  $\frac{82}{3}$

$= 82 \div 3$

$= 27 \frac{1}{3}$

c)  $\frac{26}{4}$

$= 26 \div 4$

$= 6 \frac{2}{4}$

d)  $\frac{51}{6}$

$= 51 \div 6$

$= 8 \frac{3}{6}$

1.12) Convert the mixed numbers to improper fractions.

a)  $4\frac{2}{4}$

$$= \frac{(4 \times 4) + 2}{4}$$

$$= \frac{18}{4}$$

b)  $8\frac{5}{6}$

$$= \frac{(6 \times 8) + 5}{6}$$

$$= \frac{53}{6}$$

c)  $11\frac{2}{3}$

$$= \frac{(11 \times 3) + 2}{3}$$

$$= \frac{35}{3}$$

d)  $15\frac{2}{5}$

$$= \frac{(5 \times 15) + 2}{5}$$

$$= \frac{77}{5}$$

1.13) adding and subtracting fractions with the same denominators

a)  $4\frac{2}{4} + 4\frac{1}{4} = 8\frac{3}{4}$

b)  $2\frac{3}{5} + 2\frac{2}{5} = 4\frac{5}{5} = 5$

c)  $1\frac{4}{8} + 2\frac{2}{8} - 1\frac{3}{8} = 2\frac{3}{8}$

d)  $8\frac{6}{8} - 4\frac{4}{8} + 6\frac{6}{8} = 10\frac{8}{8} = 11$

1.14) adding and subtracting fractions with different denominators

a)  $4\frac{2}{3} + 4\frac{1}{6}$

$$\boxed{LCM = 6}$$

$$= 4\frac{4}{6} + 4\frac{1}{6}$$

$$= 8\frac{5}{6}$$

b)  $4\frac{2}{5} + 6\frac{1}{3}$

$$\boxed{LCM 15}$$

$$= 4\frac{2 \times 3}{15} + 6\frac{1 \times 5}{15}$$

$$= 4\frac{6}{15} + 6\frac{5}{15}$$

$$= 10\frac{11}{15}$$

c)  $10\frac{1}{3} - 4\frac{2}{4}$  LCM 12

$$= \frac{(3 \times 10) + 1}{3} - \frac{(4 \times 4) + 2}{4}$$

$$= \frac{4 \times 31}{12} - \frac{3 \times 18}{12}$$

$$= \frac{124}{12} - \frac{54}{12}$$

$$= \frac{70}{12} = 5\frac{10}{12}$$

e)  $\frac{2}{3} + \frac{2}{5}$  LCM 15

$$= \frac{2 \times 5}{15} + \frac{2 \times 3}{15}$$

$$= \frac{10}{15} + \frac{6}{15}$$

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

g)  $2\frac{1}{3} + 5\frac{1}{4} - 3\frac{1}{2}$  LCM 12

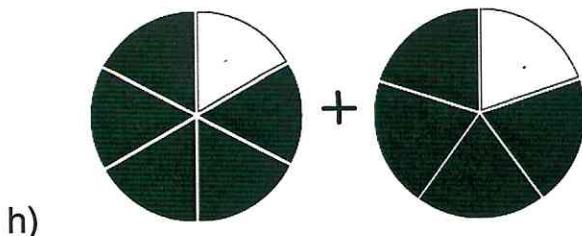
$$= 2\frac{1 \times 4}{3 \times 4} + 5\frac{1 \times 3}{4 \times 3} - 3\frac{1 \times 6}{2 \times 6}$$

$$= 2\frac{4}{12} + 5\frac{3}{12} - 3\frac{6}{12}$$

$$= 2\frac{4}{12} + 5\frac{3}{12} - 3\frac{6}{12}$$

$$= 7\frac{1}{12} - 3\frac{6}{12}$$

$$= 4\frac{1}{12}$$



d)  $4\frac{3}{6} + 6\frac{1}{4}$  LCM 12

$$= 4\frac{3 \times 2}{12} + 6\frac{1 \times 3}{12}$$

$$= 4\frac{6}{12} + 6\frac{3}{12}$$

$$= 10\frac{9}{12}$$

f)  $5\frac{2}{7} + 6\frac{1}{3}$  LCM 21

$$= 5\frac{2 \times 3}{21} + 6\frac{1 \times 7}{21}$$

$$= 5\frac{6}{21} + 6\frac{7}{21}$$

$$= 11\frac{13}{21}$$

b)  $3\frac{1}{7} - 1\frac{2}{5}$  LCM 35

$$= \frac{(3 \times 7) + 1}{7} - \frac{(1 \times 5) + 2}{5}$$

$$= \frac{22 \times 5}{35} - \frac{7 \times 7}{35}$$

$$= \frac{110}{35} - \frac{49}{35} = \frac{61}{35} = 1\frac{26}{35}$$

$\frac{5}{6} + \frac{4}{5}$  LCM 30

$$= \frac{25}{30} + \frac{24}{30}$$

$$= \frac{49}{30} = 1\frac{19}{30}$$

1.15) What fraction is it ?

a) four of six equal parts :  $\frac{4}{6}$

b) three of twelve equal parts :  $\frac{3}{12}$

c) nine of 16 equal parts :  $\frac{9}{16}$

1.16) Simplify

a)  $\frac{6}{10} : \frac{3}{5}$

$\frac{6 \div 2}{10 \div 2} : \frac{3}{5}$

b)  $\frac{25}{50} : \frac{1}{2}$

$\frac{25 \div 25}{50 \div 25} : \frac{1}{2}$

c)  $\frac{28}{35} : \frac{4}{5}$

$\frac{28 \div 7}{35 \div 7} : \frac{4}{5}$

1.17) Test your fractions knowledge.

a) What is the top number of a fraction called ? numerator

b) What is the bottom number of a fraction called ? denominator

c) What do equivalent fractions mean ?

Fractions that are equal.

d) Is the following statement true or false? A fraction is when a whole is broken down into unequal parts. false

c) What would you call a fraction with the same numerator as denominator ?  
a whole

d) What is a fraction called with a greater numerator as a denominator ?

improper fraction

e) What is a fraction called with a smaller numerator as a denominator ?

proper fraction

d) What do we call a fraction consisting of an integer and a proper fraction?

mixed number

**question 2 : length**

2.1) Complete the table.

mm	cm	m
2000	200	2
50 000	5 000	50
12 000	1200	12
240 000	24 000	240
250	25	$\frac{1}{4}$

2.2) Answer the following questions.

a) How many meters are in 2.5km ? 2 500m

b) How many cm are in  $6\frac{1}{2}$  m ? 650 cm

c) How many km in 3550m ? 3.55 km

d) How many mm in 32cm ? 320 mm

e) How many cm in 650mm ? 65cm

f) How many meters in  $12\frac{3}{4}$  km ? 12 750 m

g) How many cm in  $\frac{1}{2}$  m ? 50 cm

2.3) convert

a)  $3560\text{m} = \underline{3}\text{ km} \& \underline{560}\text{ m}$

b)  $720\text{cm} = \underline{7}\text{ m} \& \underline{20}\text{ cm}$

c)  $895\text{mm} = \underline{89}\text{ cm} \& \underline{5}\text{ mm}$

d)  $2,65\text{km} = 2650\text{ m}$

e)  $5,25\text{m} = 525\text{ cm}$

f)  $3,85\text{km} = 3850\text{ m}$

g)  $45,5\text{cm} = 455\text{ mm}$

h)  $\frac{1}{2}\text{ km} = 500\text{ m}$

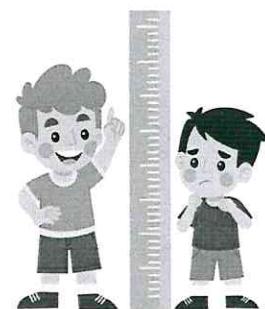
i)  $\frac{1}{4}\text{ m} = 25\text{ cm}$

j)  $\frac{3}{4}\text{ km} = 750\text{ m}$

k)  $2500\text{m} = 2,5\text{ km}$

l)  $590\text{cm} = 5,9\text{ m}$

m)  $9600\text{m} = 9,6\text{ km}$



2.4) If one lap around the school is 850m, how many km will you jog if you jog around the school 4 times?

$$\begin{aligned}
 & 4 \times 850\text{m} && \therefore 3400\text{m} \\
 & = (4 \times 800) + (4 \times 50) \\
 & = 3200 + 200 \\
 & = 3400\text{m}
 \end{aligned}$$

2.5) The carpet's dimensions in 1770cm by 1560cm. What will the dimensions in meters be ?

$$\begin{aligned}
 & 17,7\text{ m} \text{ by } 15,6\text{m}
 \end{aligned}$$

2.6) Kian rides his bike to his friend's house every day. He drives 720m there. How many km will Kian drive in a school week if he drives to his friend and back every day?

$$\begin{aligned}
 & 720 \times 10 = 7200\text{m} && 5\text{ days} \times 2 = 10 \\
 & = 7,2\text{ km} && \xrightarrow{\hspace{1cm}}
 \end{aligned}$$

2.7) Mom has a vegetable garden. The length is 550cm and the width is 380cm

She wants to put fence around the vegetable garden, but the wire is purchased by the meter. She also wants to keep space for an 80cm gate. How many m of wire is she going to need ?

$$\begin{aligned}
 \text{perimeter} &: (2 \times 550) + (2 \times 380) \\
 &= 1100 \text{ cm} + 760 \text{ cm} \\
 &= 1860 \text{ cm} \\
 1860 \text{ cm} - 80 \text{ cm} &\quad \Rightarrow 17,8 \text{ m wire} \\
 &= 1780 \text{ cm} \\
 &= 17,8 \text{ m wire}
 \end{aligned}$$

2.8) Johan has to buy 25,5m of wire for his sheep pen at R62 per metre. What is the wire going to cost him?

$$\begin{aligned}
 25 \times 62 &= 1550 \\
 \frac{1}{2} \times 62 &= 31 \\
 R1550 + R31 &= \underline{R1581} \quad \begin{array}{r} 31 \\ \times 25 \\ \hline 1550 \\ 50 \\ \hline 1550 \end{array}
 \end{aligned}$$

2.9) Marna jogs  $\frac{3}{5}$  of 2km with her horse . How far did they go?

$$\begin{aligned}
 \frac{3}{5} \text{ of } 2000 \text{ m} &\quad 1200 \text{ m} = \underline{1,2 \text{ km}} \\
 &= (2000 \div 5) \times 3 \\
 &= 400 \times 3 \\
 &= 1200 \text{ m}
 \end{aligned}$$

2.10) Liam has to dig a slope  $\frac{2}{6}$  of 3km . How far will he dig?

$$\begin{aligned}
 \frac{2}{6} \text{ of } 3000 \text{ m} &\quad 1000 \text{ m} = \underline{1 \text{ km}} \\
 &= (3000 \div 6) \times 2 \\
 &= 500 \times 2
 \end{aligned}$$

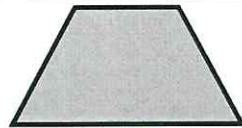
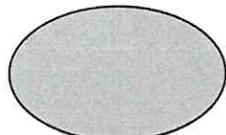
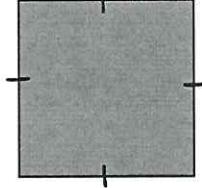
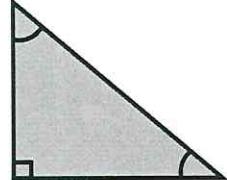
2.11) Five ropes measure 2,35m ; 640cm; 50cm; 325cm ; 1,25m

How long will they be all together ?

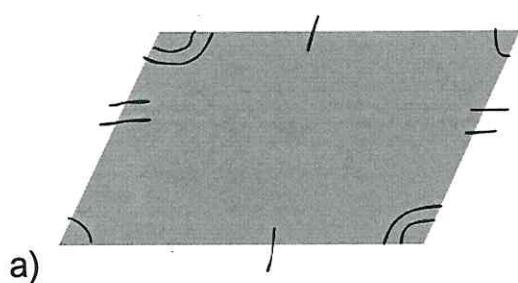
$$\begin{aligned}
 &235 \text{ cm} + 640 \text{ cm} + 50 \text{ cm} + 325 \text{ cm} + 125 \text{ cm} \\
 &= (200 + 600 + 300 + 100) + (30 + 40 + 50 + 20 + 20) + (5 + 5 + 5) \\
 &= 1200 + 160 + 15 \\
 &= 1375 \text{ cm or } 13,75 \text{ m}
 \end{aligned}$$

## question 3 : 2D en 3D

3.1) Complete the table below.

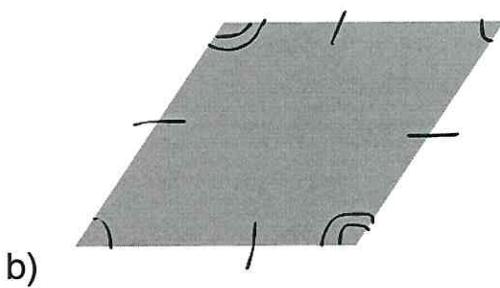
shape	name	Number of straight sides	Number of curved sides	angles
	trapezoid	4	0	4
	oval	0	1	6
	square	4	0	4
	rectangular triangle	3	0	3

3.2) Label the shape and also describe the characteristics indicated.



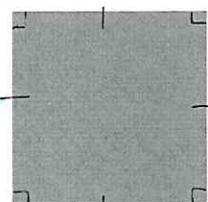
a) parallelogram

- 2 pairs opposite sides equal
- 2 pairs opposite angles equal



b) rhombus

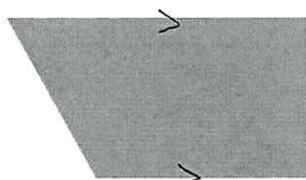
- 4 sides equal
- 2 pairs opposite angles equal



c)

Square

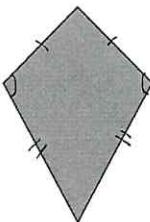
- 4 sides equal
- 4 angles equal
- and all 4 angles are right angles



e)

trapezoid

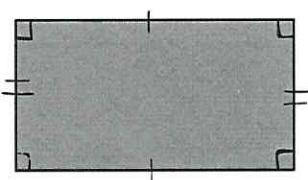
- one pair opposite sides parallel



d)

Kite

- 2 pairs adjacent sides equal
- one pair opposite angles equal



f)

rectangle

- 2 pairs opposite sides equal
- all 4 angles equal and right angles

3.3) Give the Mathematical names for the following:

2D shape with 5 straight sides	pentagon
2D shape with 6 straight sides	hexagon
2D shape with 7 straight sides	heptagon
2D shape with 8 straight sides	octagon
2D shape with 9 straight sides	nonagon
2D shape with 10 straight sides	decagon

3.4) Provide the definition for each of the following.

a) polygon : 2D shape with only straight sides

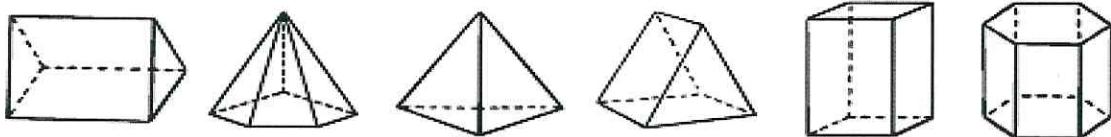
b) regular polygon : 2 D shape with only straight sides  
all of equal length

c) three-dimensional figure : Figure with three dimensions : length,  
width and height

3.5) Label each figure and complete the table. Also say how many flat faces as well as the shapes of the faces.

figure	name	faces	vertices	edges
	rectangular prism	6 rectangles	8	12
	cube	6 squares	8	12
	pentagonal prism	2 pentagons 5 rectangles	10	15
	triangular prism	2 triangles 3 rectangles	6	9
	hexagonal pyramid	1 hexagon 6 triangles	7	12
	cone	1 circle 1 curved shape	1	1
	triangular pyramid	4 triangles	4	6

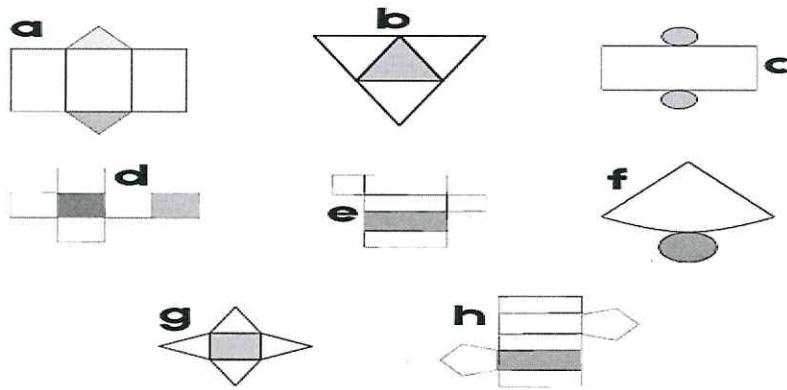
3.6) Mark all the prisms with a cross.



3.7) Explain the difference between a pyramid and a prism.

A pyramid has a base with connected triangles meeting at one vertex. Prism has 2 identical bases connected by rectangles.

3.8) Identify the 3D figure represented by each net.



a) triangular prism

b) triangular pyramid

c) cylinder

d) cube

e) rectangular prism

f) cone

g) pyramid

h) pentagonal prism

3.9) Complete the table

figure	differences	similarities
A en B	A is a prism B is a pyramid	Both have triangular base
B en G	B triangle as base G square as base	Both are pyramids

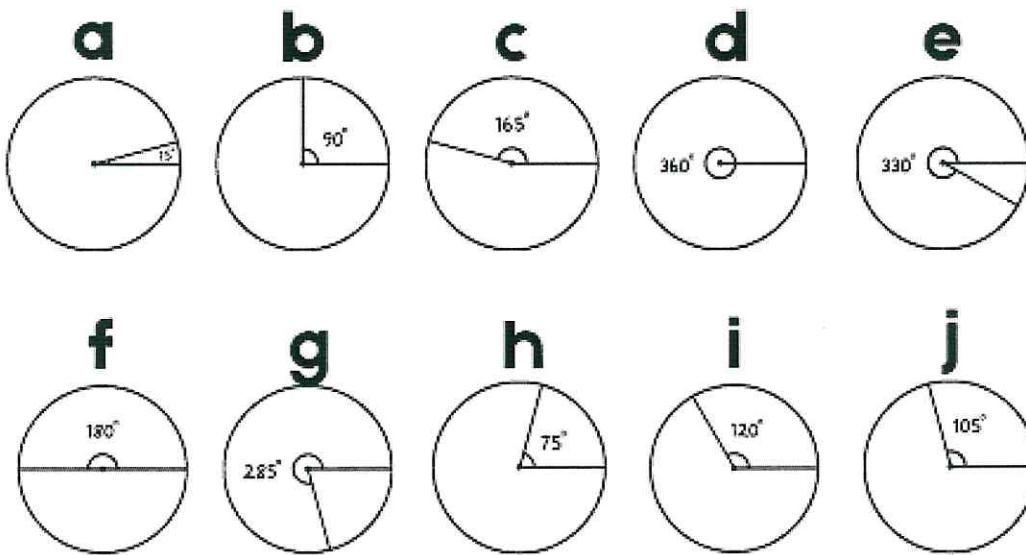
3.10) What are the difference and similarity between a rectangular prism and a cube?

differences : rectangular prism consists of rectangles and the cube consists of squares. similarities : both have 6 flat faces ; 8 vertices and 12 edges

3.11) What would you call a figure made up of two heptagons and seven rectangles?

heptagonal prism

3.12) Label each angle according to the size.



a) acute angle

c) obtuse angle

e) reflex angle

g) reflex angle

i) obtuse angle

b) right angle

d) rotation

f) straight angle

h) acute angle

j) obtuse angle

3.13) What is a triangle that has one right angle called? rectangular triangle

3.14) What is a triangle called that has one obtuse angle?

obtuse triangle