Numbers, Operations, Fractions, Decimals

Section A: Multiple Choice *Circle the correct answer from the options given:* *(12)*

1. In the number 73 354 the value of the 7 is

a) 7 x 100 000 b) 7 x 10 000 c) 7 x 1 000 d) 7 x 100

2. What number is the smallest? 52 859; 52 865; 52 856; 52 895

a) 52 859 b) 52 865 c) 52 856 d) 52 895

3. In the number 58 396, what is the place value of the 8?

a) Ten Thousands b) Thousands c) 8 000 d) 80 000

4. The quotient of 4 668 and a number is 12. What is the number?

a) 56 016 b) 4 656 c) 389 d) 398

5. Which one is not a multiple of 3 and 4?

a) 12 b) 18 c) 24 d) 48

6. The prime factors of the number 12 are:

a) 1, 2, 3 and 4 b) 1, 2 and 3 c) 1 and 2 d) 2 and 3

7. The factors of 18 are 1; 2; 18; 6; 9; x. The value of x is:

a) 36 b) 3 c) 4 d) 7

8. Which one of the following is divisible by 2?

a) 145 127 b) 105 411 c) 156 312 d) 125 013

9. The next two prime numbers in this row: 11; 13; 17; 19; 23; ___; ___, will be:

a) 27; 29 b) 27; 31 c) 29; 31 d) 29; 33

10. Identify the smallest fraction: $\frac{2}{8}$; $\frac{2}{5}$; $\frac{1}{3}$; $\frac{3}{10}$

a) $\frac{2}{8}$ b) $\frac{2}{5}$ c) $\frac{1}{3}$ d) $\frac{3}{10}$

11. The number $8\,456$ rounded off to the nearest 100 would be:

a) $8\,400$ b) $8\,000$ c) $8\,500$ d) $8\,460$

12. What is half of $\frac{1}{2}$?

a) $\frac{1}{4}$ b) $\frac{1}{8}$ c) 2 d) 1

Section B: Calculations

Question 1: *Calculate the answers:* (8)

1.1 $\_\_\_\_ + 5\,786 + 68\,499 = 93\,024$

1.2 $9 \times \_\_\_ = 42\,156$

1.3 $76\,003 - 47\,998 - 298 =$

1.4 $\_\_ \div 27 = 587$

Question 2: *Write the following number first in expanded notation and then in words:* (4)

97 803

Expanded notation: _____

Words: _____

_____

Question 3: *What numbers are represented by the following:* (2)

3.1 $(9 \times 10) + (1 \times 1\,000) + (4 \times 1) + (2 \times 10\,000) =$ _____

3.2 $3\,\text{TTh} + 8\text{U} + 7\text{H} + 2\text{Th} =$ _____

Question 4: *Sort the following numbers in **ascending** order:* (4)

88 736; 86 739; 84 397; 87 634; 87 346; 86 379; 88 673; 84 973

_____

Question 5: *Complete the table:* (6)

Number	Halve	Double	× 10	÷ 10
740				
1 030				
15 480				

Question 6: *Use the digits below to answer the questions which follow:* (6)

2	3	8	1	4

a) Use all the cards to make a number that will be divisible by 2. _____

b) Use only two cards to make a prime number. _____

c) Use all the cards to make the smallest odd number with a 1 in the Hundreds place.

_____

_____

d) Use all the digits to make the biggest sum of a 3-digit and 2-digit number.

_____

_____

_____

_____

Question 7: **Problem solving**

7.1 You can download 6 new songs for the price of R55,50 from the iTunes store. How much will it cost you to download 15 new songs? (3)

_____

_____

_____

_____

7.2 Charlie has R334,60 more than Msizi. In total they have saved R846,90. How much of this money has Charlie saved? (3)

_____

_____

_____

_____

7.3 Jason goes to athletics practice every third day and Sarah every 4th day. They last went together on Monday. In **how many days**, and **on what day** will they again go to athletics together? (3)

_____

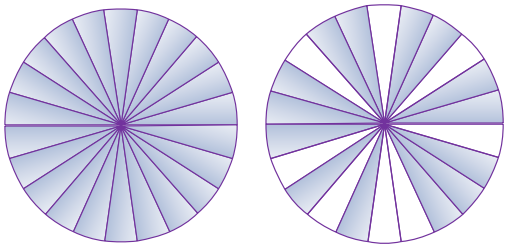
_____

_____

_____

Question 8: *Write the following shaded areas first as mixed number and then as an improper fraction.* (4)

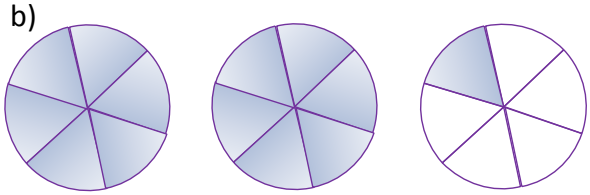
a)



= _____

= _____

b)

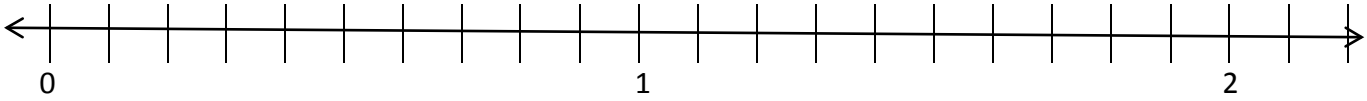


= _____

= _____

Question 9: *Write the numbers in the correct places on the number line. Write only the letter:* (6)

A: 0,8 B: $2\frac{1}{10}$ C: 1,3 D: $\frac{3}{2}$ E: $\frac{3}{5}$ F: 1,9



Question 10: *Make the following equations TRUE. Add a* **>, <** *or* **=** *in the block provided:* (4)

a) 0,21 ☐ 0,12

b) $\frac{5}{4}$ ☐ $1\frac{1}{4}$

c) 2,098 ☐ 2,908

d) $4\frac{4}{10}$ ☐ 4,2

Question 11: *Complete the table below:* (5)

Decimal Fraction	Round to nearest tenth	Round to nearest whole number	Divide by 10	Multiply by 10	Write original decimal as a fraction
3,25					
0,880					
21,95					

Question 12: *Calculate the answers to the following problems:* (6)

12.1 $\frac{2}{3}+\frac{5}{9}-\frac{2}{9}$ 12.2 $1\frac{1}{4}+3\frac{3}{8}$ 12.3 $3\frac{1}{6}-1+2\frac{5}{6}$

Question 13: Problem Solving

13.1 If 3 people share $\frac{1}{2}$ a pizza, what fraction of the pizza will each one get? (2)

_____

_____

13.2 Ellie needs $1\frac{1}{4}$ cups of flour to bake one batch of rusks. How many cups of flour will she need to bake 3 batches? (2)

_____

_____

Number patterns

Question 1: *Complete the number patterns and give the rule for each:*

1.1 2 → 8 → 32 → ☐ → 512

Rule: _____

1.2 138 → 113 → 88 → 63 → ☐

Rule: _____

1.3 324 → ☐ → 36 → 12 → ☐

Rule: _____

1.4 5 → 11 → 23 → 47 → ☐

Rule: This is a two-step problem! Hint: Number × _____ + _____

Question 2: *Complete the following function machines:*

a)

IN		OUT
6		
9	x 6	
12		
15		

b)

IN		OUT
550		
7 800	÷ 10	
13 330		
90 090		

Question 3: *Complete the table for this sequence*:

Shape	1	2	3	4	5	12
Number of Triangles	2	4	6	8		

Function rule: _____

Measurement

Question 1: *Multiple Choice— Select the correct answer:* (10)

1. If Peter weighs 47 kilograms and his little brother ways a ¼ of what he weighs. What do they weigh altogether?

a) 70,5 kg b) 58,75 kg c) 58,5 kg d) 70 kg

2. If only ¾ of a 2 litre Coca Cola bottle is filled, the capacity of the Coca Cola bottle is:

a) $2\ l$ b) $500\ ml$ c) $1{,}5\ l$ d) $750\ ml$

3. The athletics meeting started at 15:15 and ended at 19:53. How long was the athletics meeting?

a) 4 hrs 33 min b) 5 hrs 43 min c) 3 hrs 33 min d) 4 hrs 38 min

4. When having to measure kilograms of flour needed for a cake, you will use a:

a) measuring cup b) measuring jug c) measuring spoon d) scale

5. If you need to add 250 g of sugar when baking 2 kg of biscuits, how many grams of sugar will be needed when baking 5 kg of biscuits?

a) 500 g b) 625 g c) 600 g d) 525 g

6. If ¾ of an 8 litre water can is filled, the volume of the water will be:

a) $600\ ml$ b) $6\ ml$ c) $200\ ml$ d) $4\ l$

7. A hockey match at school lasted 49 minutes. It ended at 3:35 pm, at what time did it start?

a) 2:46 am b) 14:46 c) 15:46 d) 14:56

8. 22,5 kg of flour is divided equally between 9 packets. How many grams of flour will be in each packet?

a) 2, 4 kg b) 2,5 kg c) 2 500 g d) 2 000 g

9. Ellie practises ballet for 35 minutes every day of the school week. How many hours will she practise in a fortnight?

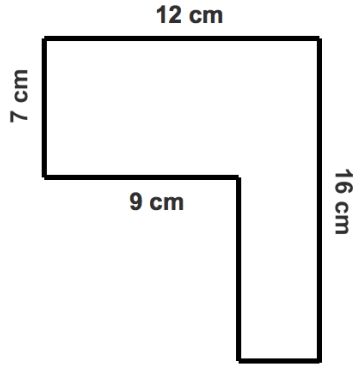
a) 5 hrs 30 min b) 5 hrs 20 min c) 5 hrs 50 min d) 5 hrs 35 min

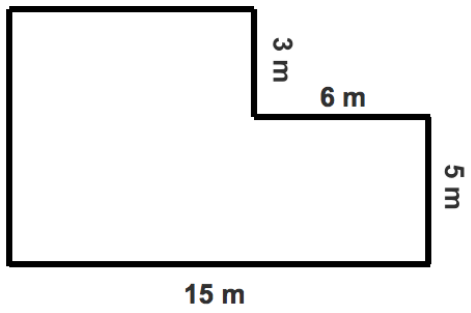
10. Mom makes Iced Tea, using $125\ ml$ of concentrate to make 1 litre of Iced Tea. How many millilitres of concentrate will be needed to fill a container with a capacity of 5 litres?

a) 5 packets b) $500\ ml$ c) $425\ ml$ d) $625\ ml$

Question 2: *Calculate the perimeter and area of each of the following:* (6)

1.



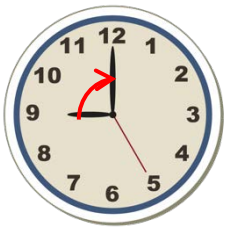
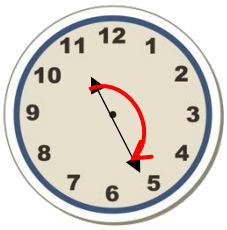
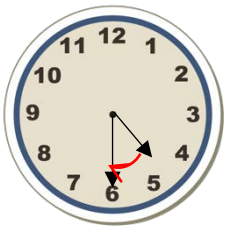
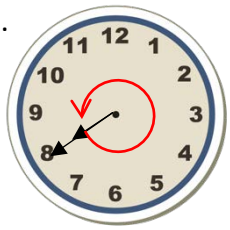


Geometry

Question 1: *State whether the following statements are TRUE or FALSE:* (10)

1. A right-angled triangle cannot have an obtuse angle. _____
2. A perpendicular line forms a right angle. _____
3. An isosceles triangle can have an obtuse angle. _____
4. A trapezium always has at least one line of symmetry. _____
5. An equilateral triangle can have a right angle. _____
6. A rectangular prism and a rectangular pyramid have the same number of vertices. _____
7. Equilateral triangles, squares and hexagons are the only regular polygons that can tessellate by themselves. _____
8. Two right angles form a straight line. _____
9. All quadrilaterals have at least one pair of parallel lines. _____
10. Parallel lines are indicated with this symbol: ⊥ _____

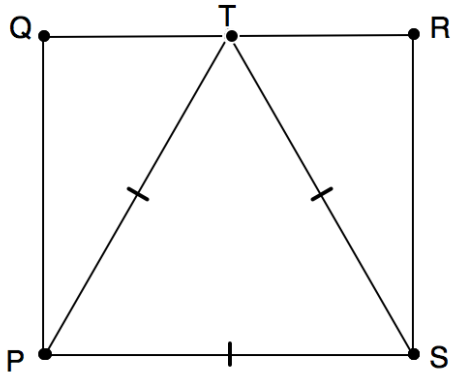
Question 2: *Identify the **size** and the **type** of angle formed by the long and short hand on each of the following clocks:* (4)

1. 
2. 
3. 
4. 

Size: _____ _____ _____ _____

Name: _____ _____ _____ _____

Question 3: *Calculate the value of the angles without using a protractor:*



PQRS is a rectangle.

a) Classify triangle PTS

b) $\angle TPS =$

c) $\angle QPT =$

Data Handling

Question 1: *Answer the following questions on the data sets given.*

1. A dice was rolled and the following outcomes recorded:

Number	**1**	**2**	**3**	**4**	**5**	**6**
Frequency	13	11	8	6	9	10

a) What is the **mode** of this data set? _____ (1)

b) In general, what is the probability of rolling an **even** number when rolling a dice? (1)

_____

c) In general, what is the probability of rolling a number **less than 3**, when rolling a dice? (1)

_____

d) Draw a bar graph to visually display the outcomes of the activity. (5)

(Draw your graph on the back of this paper.)

MEMO:

Section A: **Multiple Choice** *Circle the correct answer from the options given:* (12)

1. b) 2. c) 3. b) 4. c) 5. b) 6. d) 7. b) 8. c) 9. c) 10. a) 11. c) 12. a)

Section B:

Question 1: *Calculate the answers:* (8)

For all these problems, use the vertical method of addition, subtraction, multiplication and division.

Remember the inverse or opposite operations of each.

1.1 $\_\_\_\_ + 5\,786 + 68\,499 = 93\,024$

$5\,786 + 68\,499 = 74\,285$

$93\,024 - 74\,285 = 18\,739$

1.2 $9 \times \_\_\_ = 42\,156$

$42\,156 \div 9 = 4\,684$

1.3 $76\,003 - 47\,998 - 298 =$

$= 76\,003 - (47\,998 + 298)$

$= 76\,003 - 48\,296$

$= 27\,707$

1.4 $\_\_ \div 27 = 587$

$587 \times 27 = 15\,849$

Question 2: *Write the following number first in expanded notation and then in words:* (4)

97 803

Expanded notation: $90\,000 + 7\,000 + 800 + 3 = 97\,803$

Words: Ninety-seven thousand, eight hundred and three

Question 3: *What numbers are represented by the following:* (2)

3.1 $(9 \times 10) + (1 \times 1\,000) + (4 \times 1) + (2 \times 10\,000) = 21\,094$

3.2 $3\,\text{TTh} + 8\text{U} + 7\text{H} + 2\text{Th} = 32\,708$

Question 4: *Sort the following numbers in ascending order:* (4)

88 736; 86 739; 84 397; 87 634; 87 346; 86 379; 88 673; 84 973

84 397; 84 973; 86 379; 86 739; 87 346; 87 634; 88 673; 88 736

Question 5: *Complete the table:* (6)

Number	Halve	Double	× 10	÷ 10
740	370	1 480	7 400	74
1 030	515	2 060	10 300	103
15 480	7 740	30 960	154 800	1 548

Question 6: *Use the digits below to answer the questions which follow:* (6)

2	3	8	1	4

a) Use all the cards to make a number that will be divisible by 2.

Divisibility rule: Any number that ends on an even number e.g. 23 814; 23 418; 24 318, etc.

b) Use only two cards to make a prime number. 13, 23, 31, 41, 43, 83

c) Arrange the digits to make the smallest odd number with a 1 in the Hundreds place.

24 183

e) Use all the digits to make the biggest sum of a 3-digit and 2-digit number.

$842 + 31 = 873$ and all combinations

Question 7: Problem solving

7.1 You can download 6 new songs for the price of R55,50 from the iTunes store. How much will it cost you to download 15 new songs? (3)

First determine what one song costs to download: $R55{,}50 \div 6 = R9{,}25$

$R9{,}25 \times 15 = R138{,}75$

If will cost you R138,75 to download 15 new songs.

7.2 Charlie has R334,60 more than Msizi. In total they have saved R846,90. How much of this money has Charlie saved? (3)

Use logic or algebra to solve this problem:

Logic: Charlie + R334,60 = Msizi and together they have R846,90

Therefore if you remove the R334,60, Charlie and Msizi will have the same amount.

BUT, remember to remove it from the total to keep the equation balanced:

Charlie + Msizi = R512,30

$R512{,}30 \div 2 = R256{,}15$ Add back the R334,60 which Charlie has more:

$R256{,}15 + R334{,}60 = R590{,}75$

Charlie has saved R590,75.

7.3 Jason goes to athletics practice every third day and Sarah every 4th day. They last went together on Monday. In **how many days**, and **on what day** will they again go to athletics together? (3)

This problem can be solved using multiples or logic.

Multiples: Jason goes on day 3,6,9,12,…

Sarah goes on day 4,8,12,…

They will again go together on the 12th day **after** Monday.

They started together on Monday, 12 days from there it will be on Saturday – remember not to include Monday in your calculation!

Question 8: *Write the following shaded areas first as mixed number and then as an improper fraction.* (4)

a) $= 1\frac{14}{22} = 1\frac{7}{11}$

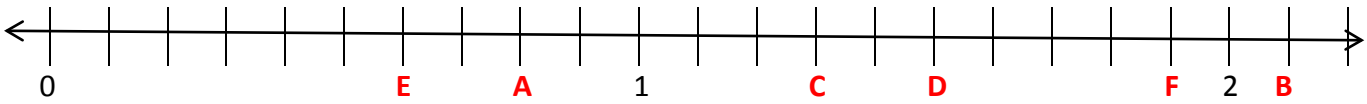
$= \frac{18}{11}$

b) $= 2\frac{1}{6}$

$= \frac{13}{6}$

Question 9: *Write the numbers in the correct places on the number line. Write only the letter:* (6)

A: 0,8 B: $2\frac{1}{10}$ C: 1,3 D: $\frac{3}{2}$ E: $\frac{3}{5}$ F: 1,9



Question 10: *Make the following equations TRUE. Add a **>, <** or **=** in the block provided:* (4)

a) 0,21 [>] 0,12

b) $\frac{5}{4}$ [=] $1\frac{1}{4}$

c) 2,098 [<] 2,908

d) $4\frac{4}{10}$ [>] 4,2

Question 11: *Complete the table below:* (5)

Decimal Fraction	Round to nearest tenth	Round to nearest whole number	Divide by 10	Multiply by 10	Write original decimal as a fraction
3,25	3,3	3	0,325	32,5	$3\frac{25}{100} = 3\frac{1}{4}$
0,880	0,9	1	0,088	8,8	$\frac{88}{100} = \frac{22}{25}$
21,95	22	22	2,195	219,5	$21\frac{95}{100} = 21\frac{19}{20}$

Question 12: *Calculate the answers to the following problems:* (6)

12.1 $\frac{2}{3} + \frac{5}{9} - \frac{2}{9}$

$= \frac{6}{9} + \frac{5}{9} - \frac{2}{9}$

$= \frac{9}{9} = 1$

12.2 $1\frac{1}{4} + 3\frac{3}{8}$

$= \frac{5}{4} + \frac{27}{8}$

$= \frac{10}{8} + \frac{27}{8}$

$= \frac{37}{8} = 4\frac{5}{8}$

12.3 $3\frac{1}{6} - 1 + 2\frac{5}{6}$

$= \frac{19}{6} - \frac{6}{6} + \frac{17}{6}$

$= \frac{30}{6} = 5$

Question 13: Problem Solving

13.1 If 3 people share $\frac{1}{2}$ a pizza, what fraction of the pizza will each one get? (2)

Each person will get a $\frac{1}{3} of \frac{1}{2} = \frac{1}{6}$

13.2 Ellie needs $1\frac{1}{4}$ cups of flour to bake one batch of rusks. How many cups of flour will she need to bake 3 batches? (2)

$1\frac{1}{4} + 1\frac{1}{4} + 1\frac{1}{4} = 3\frac{3}{4}$ Ellie will need $3\frac{3}{4}$ cups of flour to bake 3 batches of rusks.

Number Patterns

Question 1: *Complete the number patterns and give the rule for each:*

1.1 2 → 8 → 32 → 128 → 512

Rule: Multiply the previous number by 4.

1.2 138 → 113 → 88 → 63 → 38

Rule: Deduct 25 from previous number.

1.3 324 → 108 → 36 → 12 → 4

Rule: Divide previous number by 3.

1.4 5 → 11 → 23 → 47 → 95

Rule: This is a two-step problem! Hint: Number × 2 + 1

Question 2: *Complete the following function machines:*

a)

IN			OUT
6	→	x 6	36
9	→		54
12	→		72
15	→		90

b)

IN			OUT
550			55
7 800	→	÷ 10	780
13 330	→		1 333
90 090	→		9 009

Question 3: *Complete the table for this sequence*:

Shape	1	2	3	4	5	12
Number of Triangles	2	4	6	8	10	24

Function rule: Number of shape $\times$ 2 = Number of triangles

Measurement:

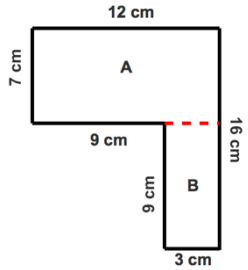
Question 1: *Multiple Choice— Select the correct answer:* (10)

1. b) 2. a) 3. d) 4. d) 5. b) 6. a) 7. b) 8. c) 9. c) 10. d)

Question 2: *Calculate the perimeter and area of each of the following:* (6)

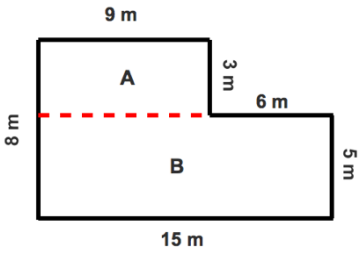
Before you start, draw in all unknown measurements, and divide the shape into sections.

1.



$Perimeter = 12cm + 16cm + 3cm + 9cm$
$+9cm + 7cm = 56cm$
$A\ shape\ A = l \times b$
$= 12cm \times 7cm = 84\ cm^2$
$A\ shape\ B = l \times b$
$= 9cm \times 3cm = 27\ cm^2$
$Total\ area = 84\ cm^2 + 27\ cm^2 = 111\ cm^2$

2.



$Perimeter = 9m + 3m + 6m + 5m$
$+15m + 8m = 46m$
$A\ shape\ A = l \times b$
$= 9m \times 3m = 27\ m^2$
$A\ shape\ B = l \times b$
$= 15m \times 5m = 75\ m^2$
$Total\ area = 27\ m^2 + 75\ m^2 = 102\ m^2$

GEOMETRY:

Question 1: *State whether the following statements are TRUE or FALSE:* (10)

1. A right-angled triangle cannot have an obtuse angle. TRUE
2. A perpendicular line forms a right angle. TRUE
3. An isosceles triangle can have an obtuse angle. TRUE
4. A trapezium always has at least one line of symmetry. FALSE
5. An equilateral triangle can have a right angle. FALSE
6. A rectangular prism and a rectangular pyramid have the same number of vertices. FALSE

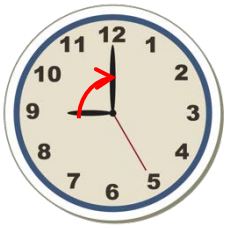
7. Equilateral triangles, squares and hexagons are the only regular polygons that can tessellate by themselves. TRUE

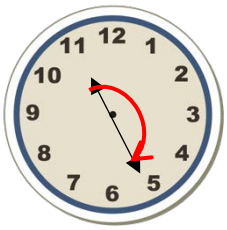
8. Two right angles form a straight line. TRUE

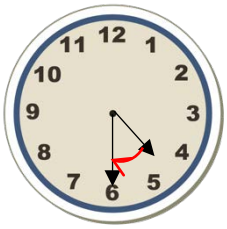
9. All quadrilaterals have at least one pair of parallel lines. FALSE

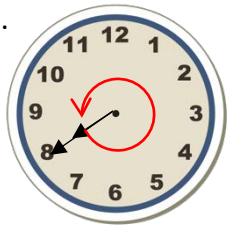
10. Parallel lines are indicated with this symbol: FALSE

Question 2: *Identify the **size** and the **type** of angle formed by the long and short hand on each of the following clocks:* (4)

1. 

2. 

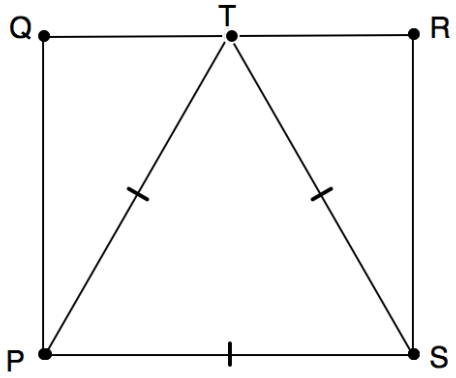
3. 

4. 

Size: 90° 180° 45° 360°

Name: right angle straight line acute angle revolution

Question 3: *Calculate the value of the angles without using a protractor:*



Classify triangle PTS Equilateral triangle

$\angle TPS = 60°$ equilateral triangle

$\angle QPT = 90° - 60° = 30°$ angles of rectangle = 90°

DATA HANDLING:

Question 1: *Answer the following questions on the data sets given.*

1. A dice was rolled and the following outcomes recorded:

Number	**1**	**2**	**3**	**4**	**5**	**6**
Frequency	13	11	8	6	9	10

a) What is the **mode** of this data set? Number 1 (1)

b) In general, what is the probability of rolling an even number when rolling a dice? (1)

You have a 3 in 6 chance or probability, therefore a 50 % probability of rolling an even number.

c) In general, what is the probability of rolling a number less than 3, when rolling a dice? (1)

1 and 2, therefore the probability is 2/6 or 1/3 to roll a number less than 3.

d) Draw a bar graph to visually display the outcomes of the activity. (5)