



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

ANNUAL NATIONAL ASSESSMENT

GRADE 9

MATHEMATICS

SET 1: 2012 EXEMPLAR

GUIDELINES FOR THE USE OF ANA EXEMPLARS

1. General overview

The Annual National Assessment (ANA) is a summative assessment of the knowledge and skills that learners are expected to have developed by the end of each of the Grades 1 to 6 and 9. To support their school-based assessments and also ensure that learners gain the necessary confidence to participate with success in external assessments, panels of educators and subject specialists developed exemplar test questions that teachers can use in their Language and Mathematics lessons. The exemplar test questions were developed from curriculum work that covers Terms 1, 2 and 3 of the school year and a complete ANA model test for each grade has been provided. The exemplars, which include the ANA model test, supplement the school-based assessments that learners must undergo on a continuous basis and do not replace them.

2. The structure of exemplar questions

The exemplars are designed to illustrate different techniques or styles of assessing the same skills and/or knowledge. For instance, some content knowledge or a skill can be assessed through a multiple-choice question (where learners select the best answer from the given options) or a statement (that requires learners to write a short answer or a paragraph) or other types of questions (asking learners to join given words/statements with lines, to complete given sentences or patterns, to show their answers with drawings or sketches, etc.). So, if teachers and learners find a number of exemplar questions that are structured differently but are asking the same thing, they should understand that this is deliberate and learners must respond to all the exemplar questions. Exposure to a wide variety of questioning techniques or styles gives learners the necessary confidence to confront tests.

3. Links with other learning and teaching resource materials

For the necessary integration, some of the exemplar texts and questions have been deliberately linked to the grade-relevant workbooks. The exemplars have also been aligned with the requirements of the National Curriculum Statement Grades R to 12 (NCS), the provisions of the Curriculum and Assessment Policy Statements (CAPS) for the relevant grades and the National Protocol for Assessment. Together these documents, plus any others that a school may provide, make up a rich resource base to help teachers in planning lessons and conducting formal assessment (assessment of learning).

4. How to use the exemplars

While the exemplars for a grade and a subject have been compiled into one comprehensive set, the teacher does not have to give the whole set to the learners to respond to in one sitting. The teacher should select exemplar questions that are relevant to the planned lesson at any given time. Carefully selected individual exemplar test questions, or a manageable group of questions, can be used at different stages of the teaching and learning process as follows:

- 4.1 At the beginning of a lesson as a diagnostic test to identify learner strengths and weaknesses. The **diagnosis** must lead to prompt **feedback** to learners and the development of **appropriate lessons** that address the identified weaknesses and consolidate the strengths. The diagnostic test could be given as homework to save time for instruction in class.

- 4.2 During the lesson as short formative tests to assess whether learners are developing the intended knowledge and skills as the lesson progresses and ensure that no learner is left behind.
- 4.3 At the completion of a lesson or series of lessons as a summative test to assess if the learners have gained adequate understanding and can apply the knowledge and skills acquired in the completed lesson(s). Feedback to learners must then be given promptly while the teacher decides on whether there are areas of the lesson(s) that need to be revisited to consolidate particular knowledge and skills.
- 4.4 At all stages to expose learners to different techniques of assessing or questioning, e.g. how to answer multiple-choice (MC) questions, open-ended (OE) or free-response (FR) questions, short-answer questions, etc.

While diagnostic and formative tests may be shorter in terms of the number of questions included, the summative test will include relatively more questions up to a full test depending on the work that has been covered at a particular point in time. The important thing is to ensure that learners eventually get sufficient practice in responding to full tests of the type of the ANA model test.

5. Memoranda or answering guidelines

A typical example of the expected response (memorandum) has been given for each exemplar test question and for the ANA model test. Teachers must bear in mind that the memoranda can in no way be exhaustive. Memoranda can only provide broad principles of expected responses and teachers must interrogate and reward acceptable options and variations of the acceptable response(s) given by learners.

6. Curriculum coverage

It is extremely critical that the curriculum must be covered in full in every class. The exemplars for each grade and subject do not represent the entire curriculum. They merely **sample** important knowledge and skills and only for work that covers terms 1, 2 and 3 of the school year. The pacing of work to be covered according to the school terms is specified in the relevant CAPS documents.

7. Conclusion

The goal of the Department is to improve the levels and quality of learner performance in the critical foundational skills of literacy and numeracy. ANA is one instrument the Department uses to monitor whether learner performance is improving, staying the same or declining. Districts and schools are expected to support teachers and provide necessary resources to improve the effectiveness of teaching and learning in the schools. By using the ANA exemplars as part of their teaching resources, teachers will help learners become familiar with different styles and techniques of assessing. With proper use the exemplars should help learners acquire appropriate knowledge and develop relevant skills to learn effectively and perform better in subsequent ANA tests.

ANNUAL NATIONAL ASSESSMENT 2012

GRADE 9 MATHEMATICS

EXEMPLAR

REAL NUMBER SYSTEM

1.1 Classify the following numbers as rational or irrational.

1.1.1 $4\frac{1}{2}$

1.1.2 $\sqrt{2}$

1.1.3 0,2

1.2 Copy and complete the table.

NUMBERS	REAL	NON- REAL	UNDEFINED
$\frac{0}{7}$			
$\frac{7}{0}$			
$\sqrt{7}$			
$\sqrt{-7}$			

1.3 Write each of the following numbers as a common fraction.

1.3.1 0,7

1.3.2 0,13

1.3.3 2,01

1.4 Calculate and write the answer in scientific notation.

1.4.1 $2,5 \times 10^3 \times 7$

1.4.2 $0,04 \times 10^{-1} + 3 \times 10^{-3}$

1.4.3 $1,12 \times 10^{-4} \times 3 \times 10^{-2}$

1.5 Which number is smaller?

1.5.1 $\sqrt{3}$ or 1,6

1.5.2 $-\sqrt{5}$ or -1,3

1.6 Determine one real number between:

1.6.1 $0,1\dot{5}$ and $0,1\dot{5}$

1.6.2 0,7 and $0,\dot{7}$

1.7 Between which two integers does each of the following irrational number lie?

1.7.1 $\sqrt{6}$

1.7.2 $\sqrt{21}$

1.7.3 $\sqrt[3]{5}$

1.7.4 $\sqrt[3]{80}$

1.8 Copy the table below and, then classify each of the given numbers by using a tick (✓).

	NATURAL NUMBER	WHOLE NUMBER	INTEGER	RATIONAL	IRRATIONAL	REAL
e.g. $3\frac{1}{2}$				✓		✓
$\frac{7}{15}$						
$\sqrt{2\frac{1}{8}}$						
$\sqrt[3]{0,081}$						
2π						
$-\sqrt{16}$						
0,528						
2,6						
$\frac{6}{2}$						

- 1.9 Arrange in ascending order.
- 1.9.1 0,75 0,625 0,8 0,6
- 1.9.2 0,24 0,2 0,2 0,20
- 1.9.3 $0,6$ $\sqrt{0,36}$ 0,69 $\sqrt{0,366}$
- 1.9.4 $\frac{-2}{3}$ $\frac{-3}{2}$ $-\frac{1}{6}$ $-\frac{5}{6}$
- 1.9.5 -0,1 -0,12 -0,11 -0,01

FINANCIAL MATHEMATICS

- 1.1 A bag of oranges containing 22 oranges costs R20,00. How much profit can you make if you sell each orange for R1,50?
- 1.2 The following table is used to determine how much tax a person has to pay per year.

TAX INCOME	TAX RATE
R0 – R80 000	18%
R80 000 – R120 000	R12 000 + 20% of the amount above R80 000
R120 000 – R160 000	R20 000 + 25% of the amount above R120 000
R160 000 – R220 000	R30 000 + 30% of the amount above R160 000
R220 000 and more	R42 000 + 35% of the amount above R220 000

- 1.2.1 How much tax does a person pay if his taxable income per year is the following:
- R75 000
 - R97 500
 - R150 000
 - R300 000
- 1.2.2 Use the table in QUESTION 1.2 to complete the table below.

Taxable income	R140 000		R230 000
Tax		R16 000	

- 1.3 The price of a cell phone increased from R1 500,00 to R1 740,00. What is the percentage increase?

- 1.4 Temoso invested R1 500,00 for two years at a rate of 11% simple interest (S.I) per year. What is her investment worth at the end of the second year?
- 1.5 An amount of R2 750 is invested for 7 years at 11,5% per annum compound interest.
- 1.5.1 Determine how much the investment will be worth at the end of 7 years.
- 1.5.2 Determine the amount of interest earned on this investment.
- 1.6 Calculate the final amount and interest earned if R9 500 is invested for 8 years at an interest rate of:
- 1.6.1 12% per annum compounded quarterly
- 1.6.2 8% per annum compounded half yearly
- 1.6.3 6,5% per annum compounded monthly
- 1.6.4 7,25% per annum compounded annually

RATIO, PROPORTION AND RATE

- 1.1 A flight from Johannesburg to Durban takes one hour if an aeroplane flies at 600km/h. At what speed will it fly if the same flight takes 2 hours?
- 1.2 The cell phone tariff during peak hours is given in the table below. Copy and complete the table.

Number of minutes	2	4	6	8	x
Cost	R1,60	R3,20			R16,00

- 1.3 Five men take 45 hours to build a wall. How long will it take 9 men working at the same pace to build this wall?
- 1.4 Three workers can mow the lawn of the stadium in 8 hours. How many workers working at the same rate will mow the lawn in 2 hours?
- 1.5 If 3kg of potatoes cost R24, how much will 7kg of potatoes cost?

1.6 Examine the table.

x	2	3	6	9
y	10	15	30	45

1.6.1 Are the x and y values in direct or indirect proportion?

1.6.2 Write an equation that represents the relationship between x and y .

1.6.3 Use the equation in QUESTION 1.6.2 to determine the value of y if $x = 25$.

1.7 If 15 apricots cost R5,60, how many apricots will cost R10,08?

1.8 Siphon paid R605,50 for 70ℓ of petrol. What did the petrol cost per litre?

1.9 How much will it cost for 1kg of polony if 0,35 kg of polony costs R25,10?

1.10 If 12,5 kg of sugar cost R90, how much will 7,2 kg of the sugar cost?

1.11 A scooter uses 6,5ℓ petrol to travel a distance of 130 km. How much petrol will it use to travel a distance of 80km?

1.12 Peter used 5ℓ of paint to paint a wall that is 8 m long and 5m high. How many square metres (m^2) can Peter paint with 1ℓ of paint?

SPEED /TIME /DISTANCE

1.1 Durban is 600 km from Johannesburg. How long does it take to cover this distance by car when travelling at an average speed of 120 km/h?

1.2 A truck driver took 8 hours to cover the same distance. What was his average speed?

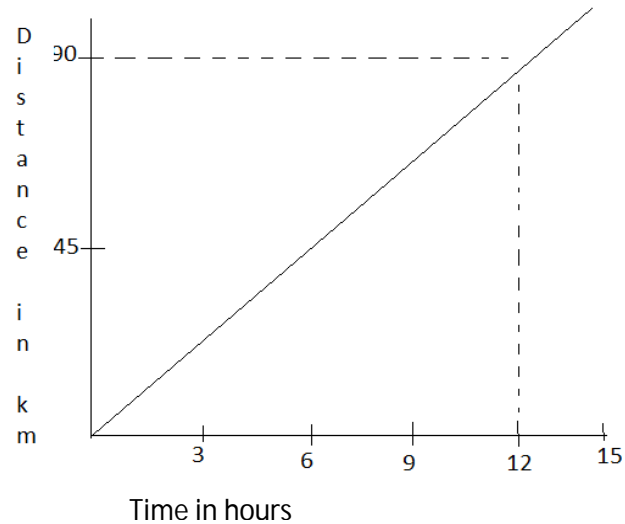
2 Zaheda travels for 6 hours partly by car at 100 km/h and partly by air at 300 km/h. If she travelled a total distance of 1200 km how long did she travel by air?

3 Copy and complete the table below for x, y and z .

Speed (km/h)	Time (h)	Distance (km)
120	1,5	x
y	2,75	343,75
220	z	660

- 4 It takes Linda 30 minutes to walk from home to school when walking at 5 km/h. What is her average cycling speed if it takes her 15 minutes by bike to travel the same distance?

5



The distance from Durban to Pietermaritzburg is 90 km. The graph above represents the time that was taken by a comrade's marathon runner to run from Durban to Pietermaritzburg.

- 5.1 Use the graph to determine the average speed of the runner.
5.2 After running for 6 hours how far was she from Durban?

- 6 Bongiwe travels q kilometres at p kilometres per hour. On her return journey her speed is increased by 20 kilometres per hour. Determine the time she will take to cover the return journey in terms of p and q .

EXPONENTS

1 Calculate without using a calculator.

1.1 99×1001^0

1.2 $a^2 b^3 \times b^{-2} a^{-3}$

1.3 $\frac{a^4(b^2)^4}{a^{-3}b^5}$

1.4 $\frac{(8x^2)(-4x^{-2}y^3)}{(2x^{-1}y)^2}$

1.5 $\frac{2^{n+1}8^{n-1}}{2^{n-1}}$

1.6 $\frac{15^x \cdot 3^{x+1} \cdot 25^x}{9^{x+1} \cdot 125^x}$

1.7 $(2p^2q^3) \times \frac{5p^0q}{q^5}$

1.8 $(x^{-3})(x^2)$

1.9 $(a^2 \cdot a^{-5} \cdot a^3) \div a^4$

1.10 $\frac{(3x^3y^2)^3(x^2y)^0}{(xy^3)^2}$

PATTERNS, FUNCTIONS AND ALGEBRA

1. Fill in the missing numbers in each sequence.

1.1 97; ___; 83; 76; ___

1.2 36; 72; ___; 144; ___; 216.

1.3 12; 21; 30; ___; ___

2. Consider the sequence 3; 9; 15; _____; 57.

2.1 Describe how you get the next number after 15.

2.2 Write down the general term of the given sequence in the form $T_n =$

2.3 Which term in the sequence is equal to 45?

3. The table below represents the pattern showing the number of panels, poles and slabs in a fence.

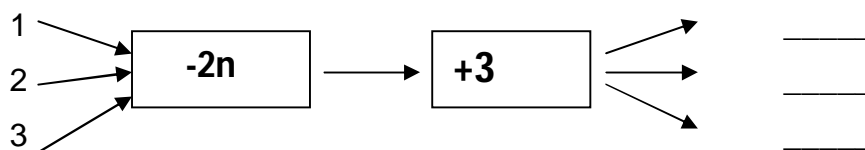
Number of panels	1	2	3	4	5	6	7
Number of poles	2	3	4				
Number of slabs	6	12	18				

- 3.1 Copy and complete the above table.
- 3.2 Write down the general term of the given sequence to represent the relationship between the number of poles and the number of panels in the fence.
- 3.3 Write down the general term to represent the relationship between the number of slabs and the number of panels in the fence.
- 3.4 How many poles and slabs will there be in the 10th panel?

4. Determine the missing output values in the following flow diagram.

INPUT/OUTPUT

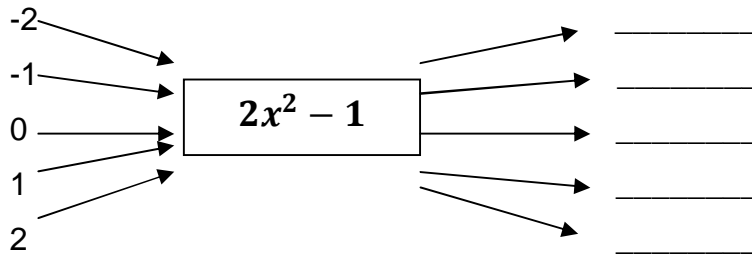
RULE



5. Determine the output values in the following flow diagram.

INPUT/OUTPUT

RULE



6. $y = -2x^2 + 6x - 8$
Determine the value of y if $x =$

6.1 0

6.2 -1

6.3 a

6.4 $a + 2$

7. $y = 3^x$
Determine the value y if $x =$

7.1 0

7.2 3

7.3 -2

PRODUCTS

1. Multiply and simplify where necessary.

1.1 $3(2x - 1) - 5$

1.2 $5x - 3(2x - 1)$

1.3 $5x - 3x(2x - 1)$

1.4 $(a + 3)(a - 3)$

1.5 $(3a + 2)(3a - 2)$

1.6 $3(p + 3)(p - 1)$

1.7 $-5(p^2 + q)(2p^2 - q)$

1.8 $(x - 4)^2$

1.9 $(2x - 3)^2$

1.10 $3(4x - 3)^2$

1.11 $(a - 2)(a - 3) - (a + 2)^2$

$$1.12 \quad 3a(a - 2) - 4a(3a - 3) - 5(a^2 - 2)$$

$$1.13 \quad \frac{1}{3}(3x - 1)(3x + 1) - \frac{2}{3}(x + 1)(x - 1)$$

$$1.14 \quad 4\left(x + \frac{1}{4}\right)\left(x - \frac{1}{4}\right) - \left(x + \frac{1}{4}\right)^2$$

$$1.15 \quad a\left(xy + \frac{1}{a}\right)\left(xy - \frac{1}{a}\right) - a\left(xy - \frac{1}{a}\right)^2$$

FACTORS

1. Factorise the following expressions completely.

$$1.1 \quad 8a + 12b$$

$$1.2 \quad -10p - 15q$$

$$1.3 \quad p^2 + q$$

$$1.4 \quad 24a - 12b + 16$$

$$1.5 \quad p^4 - p^3$$

$$1.6 \quad -2x - 2x^3$$

$$1.7 \quad 8t^4 - 10t^2$$

$$1.8 \quad 6x^6 - 12x^4 + 18x^2$$

$$1.9 \quad 8t^{12} - 12t^8 - 20t^4$$

$$1.10 \quad mp - mq - np + nq$$

$$1.11 \quad t^2(x - y) + z^2(y - x)$$

$$1.12 \quad x^2 - y^2$$

$$1.13 \quad a^3 - ab^2$$

$$1.14 \quad p^4 - t^4$$

$$1.15 \quad 16q^{16} - p^6$$

$$1.16 \quad 3x^2 - 27y^2$$

$$1.17 \quad \frac{1}{2}x^2 - 2$$

$$1.18 \quad \frac{1}{2}q^2 - \frac{1}{8}p^2$$

2. Use factorisation to calculate.

$$2.1 \quad (97)^2 - 9$$

$$2.2 \quad (101)^2 - (100)^2$$

$$2.3 \quad (55)^2 - (25)^2$$

$$2.4 \quad (20,5)^2 - (15,5)^2$$

EQUATIONS

1 Solve the following equations.

1.1 $6a - 8 = 16$

1.2 $a^2 - 3a = 0$

1.3 $2(x + 2) = 3(3x - 4)$

1.4 $\frac{x-5}{4} - \frac{3-4x}{9} = 13$

1.5 $3x + \frac{x}{5} + 13 = \frac{2x+1}{3}$

1.6 $5^x = 625$

1.7 $\left(\frac{1}{2}\right)^x = 32$

1.8 $3^{x+1} = 81$

2.1 The sum of three consecutive even numbers is 78. Determine the three numbers.

2.2 Patrick is five times as old as Ben. After four years Patrick will be three times as old as Ben. What are their present ages?

2.3 The area of a rectangular room is $(-12a^6 + 6a^3)m^2$. If the length is $(-6a^3)m$, calculate the breadth in terms of a .

2.4 If the area of a rectangle is $(2x^2 - 8)m^2$. Determine the length in terms of x if the breadth is $(x + 2)m$.

2.5 The length of a rectangle is twice as long as its breadth. Determine the lengths of the sides of the rectangle if its area is $32 m^2$.

INEQUALITIES

1 Represent the following inequalities on a number line.

1.1 $3 \leq x < 6$ and $x \in R$

1.2 $p \leq -3\frac{1}{2}$ or $p \geq 0$ and $p \in R$

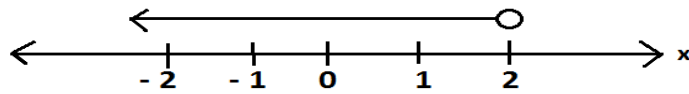
1.3 $-3\frac{1}{2} < p < 0$ and $p \in Z$

1.4 $q \leq -8$ and $q \in R$

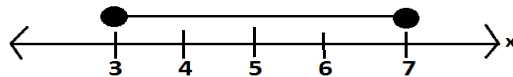
1.5 $q \geq -8$ and $q \in Z$

2. Write down the inequality represented by each number line below.

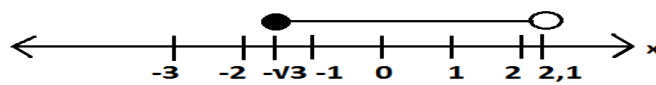
2.1



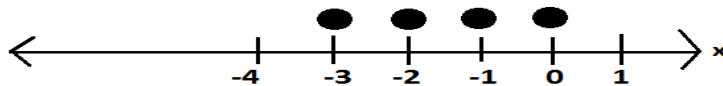
2.2



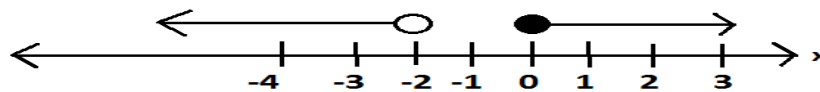
2.3



2.4



2.5



ALGEBRAIC FRACTIONS

1 Simplify.

1.1 $\frac{2x^2}{y} \times \frac{2y^2}{2x}$

1.2 $\frac{(x^2-y^2)}{x+y}$

1.3 $\frac{15p^2q^4}{5xy^2} \div \frac{3p^4q^2}{6x^2y} \times \frac{y^2}{q^2}$

1.4 $\frac{x^2-4x}{4y} \times \frac{4xy}{xy(x-y)} \div \frac{x}{y^2-y}$

1.5 $\frac{x}{2} + \frac{x}{2}$

1.6 $\frac{7x-5}{2} - \frac{10x-7}{3}$

1.7 $\frac{6x+10}{6} + \frac{3x-5}{5} - 6$

$$1.8 \frac{3}{x+1} - \frac{x+2}{x-1}$$

GRAPHS

1. On a separate system of axes, draw the graphs defined by

1.1 $y = 3x - 2$

1.2 $y = -\frac{2}{3}x + 1$

2. Write down the equation describing the relationship between x and y in each of the tables.

2.1

x	1	2	3	4
y	-4	-6	-8	-10

2.2

x	-2	-1	0	1	2
y	7	5	3	1	-1

2.3

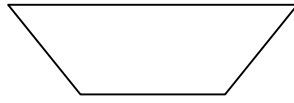
x	1	2	3	4	5
y	$1\frac{1}{3}$	$1\frac{2}{3}$	2	$2\frac{1}{3}$	$2\frac{2}{3}$

3. The vertices of $\triangle ABC$ are the points of intersection of the lines defined by $3y - x - 3 = 0$, $y = x + 1$ and $x = -3$. Sketch $\triangle ABC$.
4. A straight line graph intersects the X- and Y- axes at -1 and 2 respectively. Determine the equation of the line.

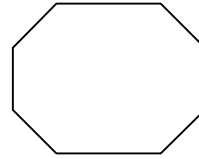
SPACE AND SHAPE

1.

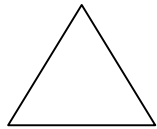
A



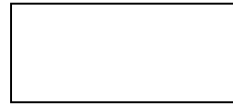
B



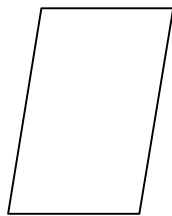
C



D



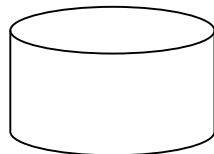
E



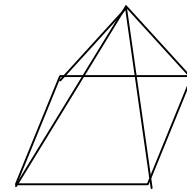
1.1 Name each of the above figures.

1.2 Name the following 3-D objects.

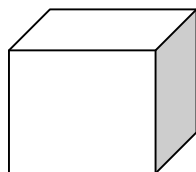
A



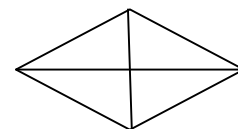
B



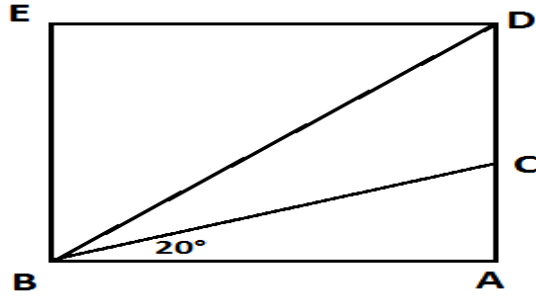
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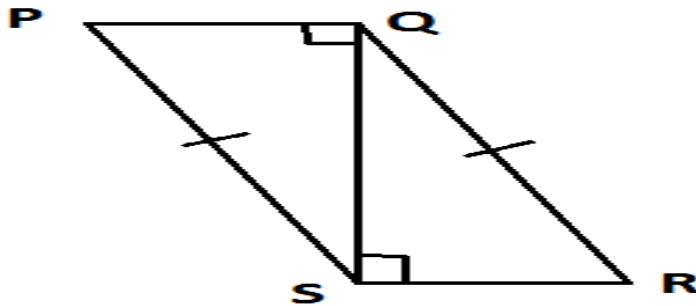


2.

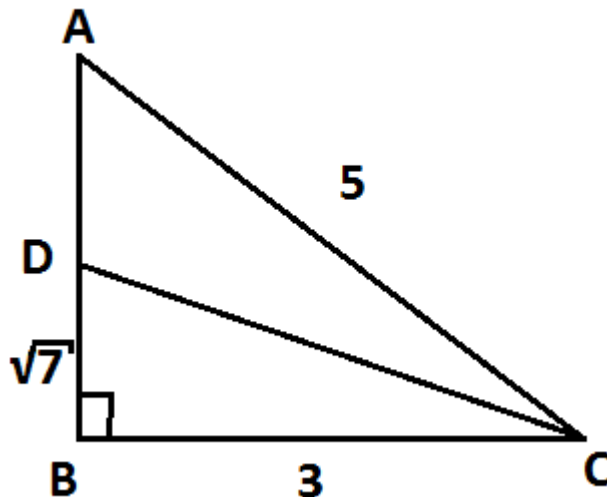


ABED is a rectangle and $\hat{A}BC = 20^\circ$. Complete:
 2.1 _____ is the angle of depression of B from D.
 2.2 The compass direction of C from B is _____.

3. In the figure below $PS = QR$, $\hat{P}QS = 90^\circ$ and $\hat{Q}SR = 90^\circ$. Prove that $\triangle PQS \cong \triangle RSQ$.

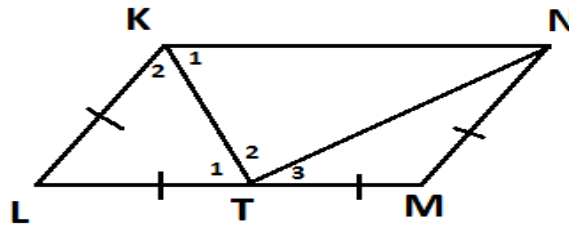


4.

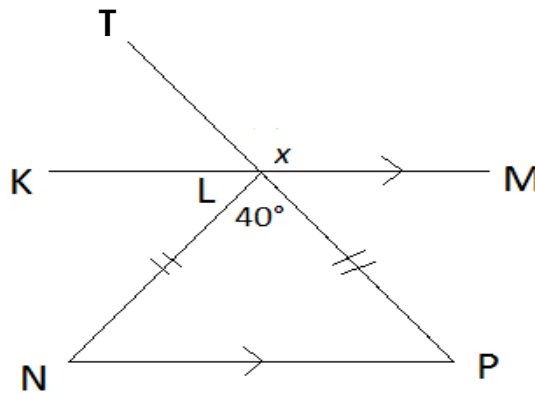


In the above figure $\hat{B} = 90^\circ$, $AC=5$ units, $BC= 3$ units and $BD=\sqrt{7}$ units.
 Calculate the lengths of AD and DC. Leave the answer in surd form if necessary.

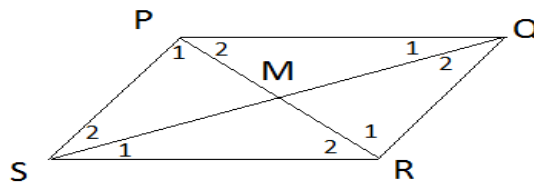
5. KLMN is a parallelogram with $KL = LT$, $TM = MN$ and $\widehat{M} = 120^\circ$. Calculate the size of \widehat{T}_2



6. In the figure below, $KM \parallel NP$, $LN = LP$ and $\widehat{NLP} = 40^\circ$. Determine with reasons, the size of \widehat{TLM} .



7. In the figure below the diagonals of parallelogram PQRS intersect at M.

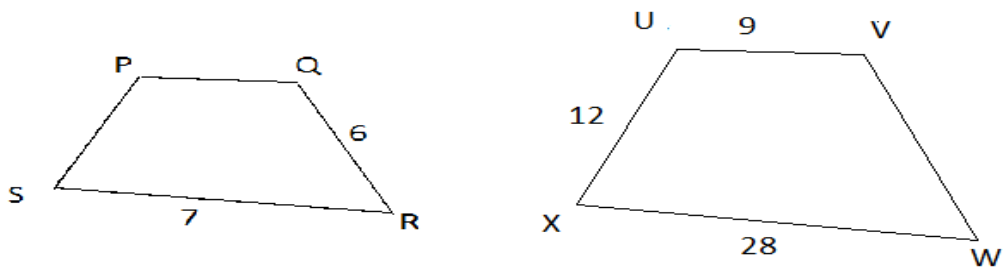


7.1 Prove that $PQ = SR$ and $PS = QR$.

7.2 Prove that $PM = MR$ and $SM = QM$.

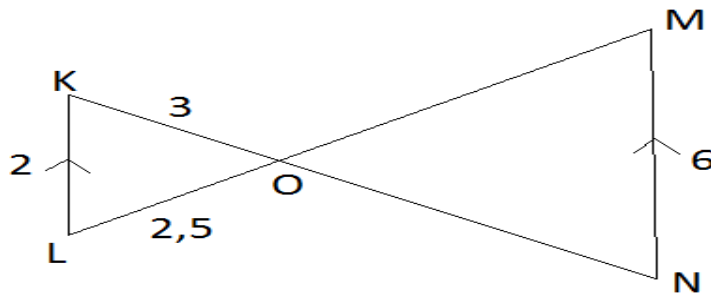
7.3 What can you deduce about the diagonals of a parallelogram?

8



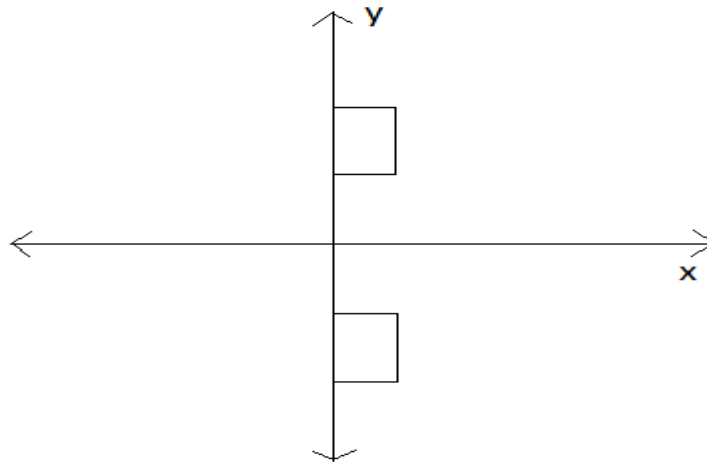
Quadrilateral PQRS $\parallel\parallel$ quadrilateral UWX. Determine the lengths of PQ and VW.

9. In the diagram shown below $KL \parallel MN$, $KL = 2$ cm, $KO = 3$ cm, $LO = 2,5$ cm and $MN = 6$ cm. Calculate the length of LM.



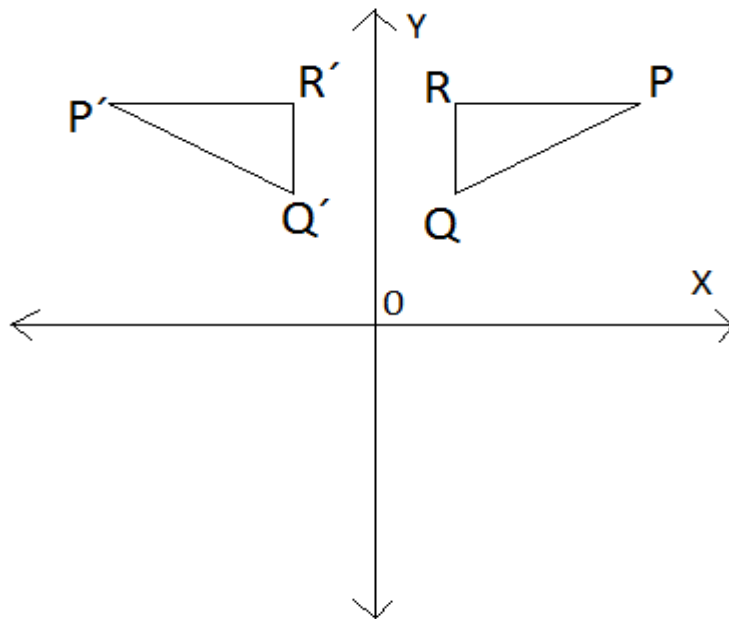
TRANSFORMATIONS

1. Write down the co-ordinates of the image of $B(3; -4)$ for each of the following transformations.
 - 1.1 $(x; y) \rightarrow (x - 4; y)$
 - 1.2 $(x; y) \rightarrow (x; y - 2)$
 - 1.3 $(x; y) \rightarrow (-x; y)$
 - 1.4 $(x; y) \rightarrow (y; x)$
2. Name two different transformations that will map the figure in the first quadrant onto the figure in the fourth quadrant.

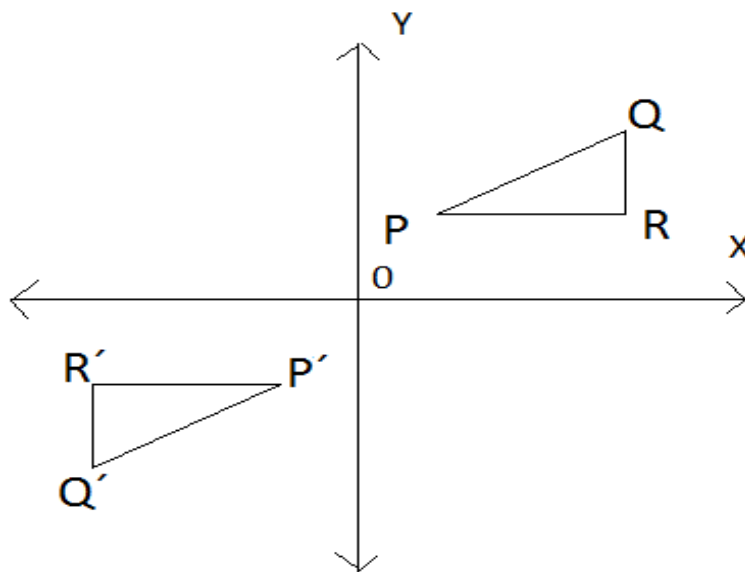


3 Which kind of transformation maps ΔPQR onto $\Delta P'Q'R'$ in each of the following:

3.1

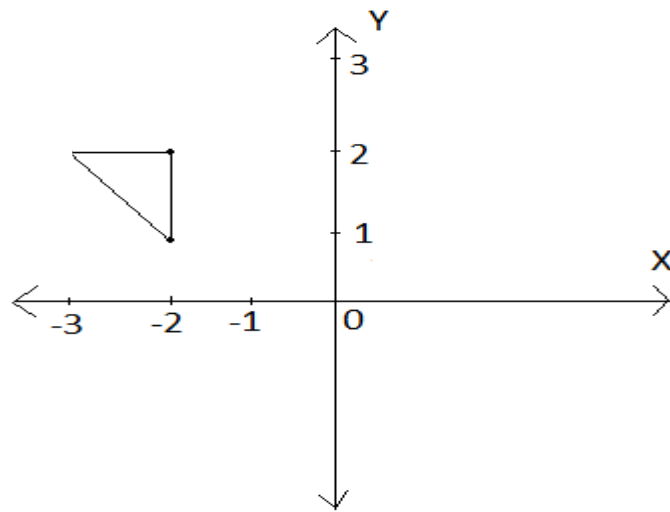


3.2



4. $A(-2; 3)$, $B(1; 5)$ and $C(5; -2)$ are the vertices of ΔABC . The sides of ΔABC are enlarged by scale factor 3. Write down the co-ordinates of the vertices of the enlarged triangle.

5.

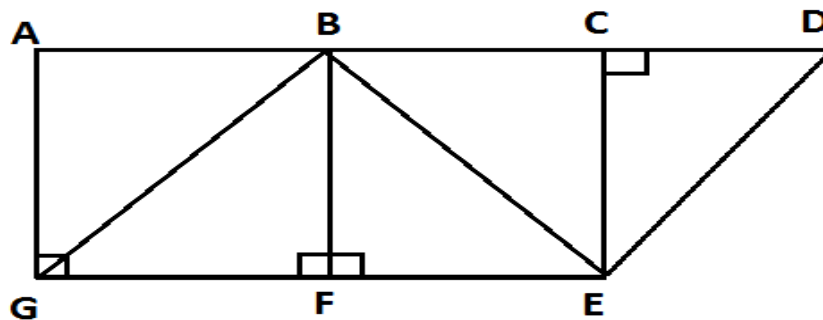


Use the above diagram to answer the following questions.

- 5.1 Translate the triangle 2 units to the right and 1 unit upwards. Use letter C to label the new the triangle.
- 5.2 Reflect figure triangle C about they = x line. Use letter D to label this the triangle.

MEASUREMENT

1.



In the figure above $AB = BC = CD$, $AB = 3$ cm and $AG = 4$ cm.

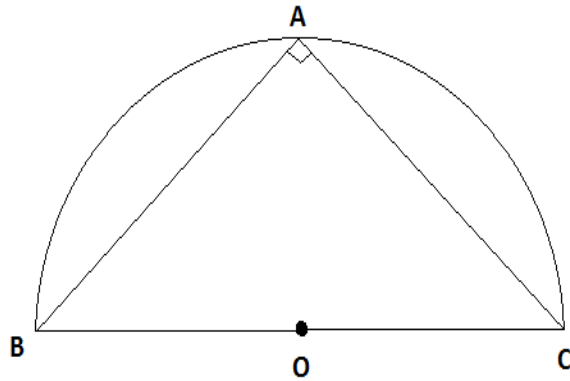
- 1.1 Calculate the area of $\triangle CED$.
- 1.2 Calculate the area of $\triangle GBE$.
- 1.3 Calculate the area of the trapezium ADEG.
- 1.4 Calculate the area of the parallelogram BDEG.
- 1.5 Calculate the length of BE.

1.6 Calculate the perimeter of ...

1.6.1 $\triangle GBE$

1.6.2 trapezium ADEG

2.



BC is a diameter of a semi-circle. $\widehat{BAC} = 90^\circ$, $AB = 7$, $AC = \sqrt{120}$ and $BO = OC$. Calculate the area of the semi-circle correct to two decimal places.

3. The length, breadth and height of a rectangular prism are 8 cm, 12 cm and 18 cm respectively. Calculate:

3.1 the total surface area of the prism

3.2 the volume of the prism

4. Calculate, without using a calculator, the height of a cylinder with volume 550 cm^3 if $\pi = \frac{22}{7}$ and $r = 5 \text{ cm}$.

5. A rectangular tank with length equal to 50 cm and width equal to 30 cm contains 24ℓ of water. Calculate the depth of the water.

DATA HANDLING

1. The following are mathematics marks out of 100 of a group of Grade 9 learners.

70	30	80	90	50
100	70	60	40	20
70	50	80	70	30

1.1 Arrange the marks in ascending order.

1.2 For the above data set, determine the

1.2.1 median

1.2.2 mode

1.2.3 range

1.2.4 Mean

- 2.

3	2	15	27	35	4	5	14
45	30	2	37	42	53	33	50
70	15	34	31	2	1	32	59

The data above shows the ages of passengers travelling on a Greyhound bus from Johannesburg to Cape Town.

2.1 How many passengers are on the bus?

2.2 Determine the range of the ages.

2.3 Calculate the mean age of the passengers, on the bus, to the nearest whole number.

2.4 Copy and complete the frequency table below.

AGES IN YEARS	TALLY MARKS	FREQUENCY
1 - 13		
14 - 26		
27 - 39		
40 - 70		

2.5 What is the modal class of the data?

2.6 How many passengers are younger than 40 years?

3. The following shoe sizes of Grade 9 learners were recorded.

3 10 2 12 8 7 5 15 9 6 8

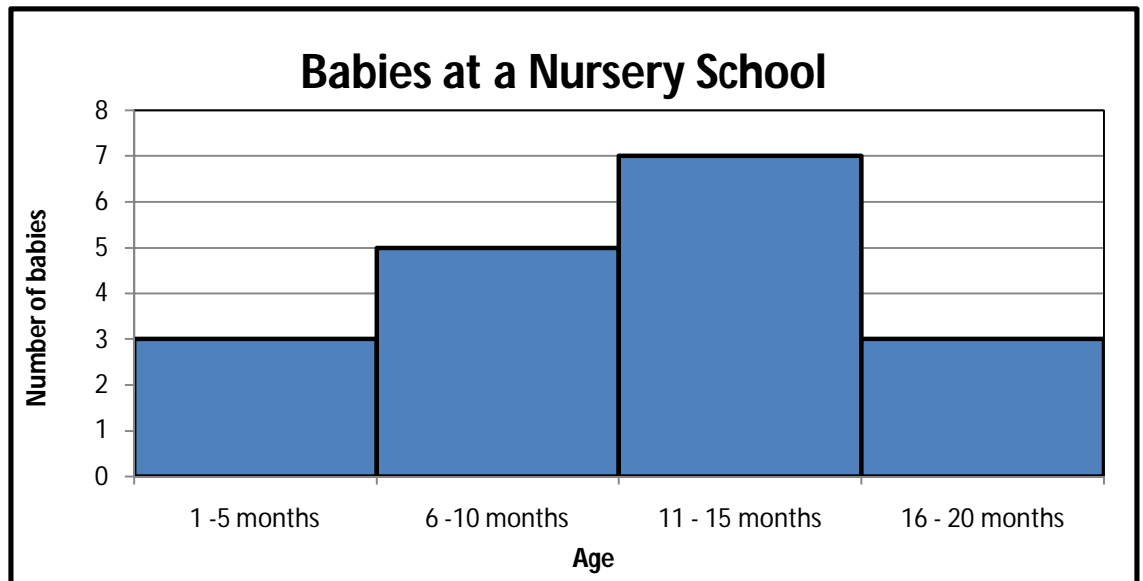
9 7 4 9 6 13 13 11 10 14 6

3.1 How many learners are there in the group?

3.2 Determine the range of the shoe sizes.

3.3 Record the data in a grouped frequency table.

4. The following histogram represents the ages (in months) of babies at a nursery school.



- 4.1 How many babies are there altogether at the nursery school?
- 4.2 How many babies are younger than 16 months?
- 4.3 What is the modal class of the data?
5. Philani throws an ordinary 6-sided die and tosses a coin.
- 5.1 List the possible combined outcomes.
- 5.2 Draw a tree diagram to represent the possible outcomes.
- 5.3 What is the probability that Philani gets ...
- 5.3.1 a 5 and a head?
- 5.3.2 tails and an even number?
6. Mary has a black skirt and a brown skirt that she wears to work on a daily basis. She has a black, white, royal blue, striped and red blouse. Write down a probability that she will choose to wear
- 6.1 a black skirt and a black blouse.
- 6.2 a brown skirt and a white blouse.
- 6.3 a royal blue or a striped shirt with a black skirt.

7. There are 12 men and 18 women in a church choir. Only one person can be chosen to sing a solo. The conductor chooses a singer at random.
- 7.1 What is the probability that she chooses a woman?
- 7.2 What is the probability that she chooses a man?
8. A letter is chosen from the word STATISTICS.
- 8.1 How many of the S letters are there?
- 8.2 What is the probability that the letter chosen is an
- 8.2.1 S
- 8.2.2 I
- 8.2.3 A
9. Tozi tosses a fair coin 3 times. Draw a tree diagram to represent the possible outcomes.

END