

Solutions Included

**Maths Revision
Booklet**

Calculator Exam Practice

N5 Revision Calculator Practice Questions Mixed Set 1

Questions from previous SQA Exams

1. It is estimated that an iceberg weighs 84 000 tonnes.

As the iceberg moves into warmer water, its weight decreases by 25% each day.

What will the iceberg weigh after 3 days in the warmer water? Give your answer correct to three significant figures.

2. A machine is used to put drawing pins into boxes. A sample of 8 boxes is taken and the number of drawing pins in each is counted.

The results are shown below:

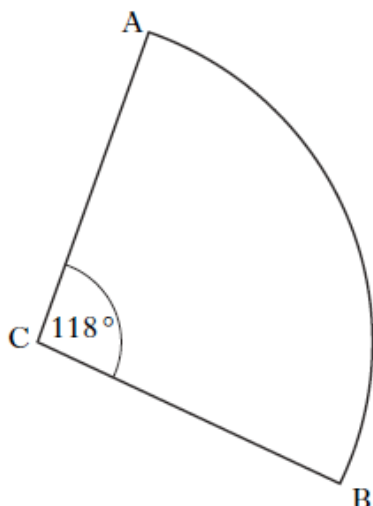
102 102 101 98 99 101 103 102

- a) Calculate the mean and standard deviation of this sample.
- b) A sample of 8 boxes is taken from another machine. This sample has a mean of 103 and a standard deviation of 2.1. Write down two valid comparisons between the samples.

3. Use the quadratic formula to solve the equation, $3x^2 + 5x - 7 = 0$.

Give your answers correct to 1 decimal place.

4. The diagram below shows a sector of a circle, centre C. The radius of the circle is 10.5 cm and angle ACB is 118° . Calculate the length of arc AB.

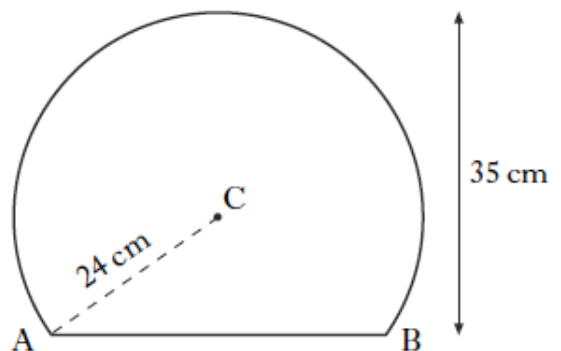


5. Solve the equation

$$5 \tan x^\circ - 6 = 2 \text{ for } 0 < x < 360.$$

6. A mirror is shaped like part of a circle. The radius of the circle, centre C, is 24 centimetres. The height of the mirror is 35 centimetres.

Calculate the length of the base of the mirror, represented in the diagram by AB.



7. Suzie has a new mobile phone. She is charged x pence per minute for calls and y pence for each text she sends. During the first month her calls last a total of 280 minutes and she sends 70 texts. Her bill is £52.50.

- a) Write down an equation in x and y which satisfies the above condition.

The next month she reduces her bill. She restricts her calls to 210 minutes and sends 40 texts. Her bill is £38.00.

- b) Write down a second equation in x and y which satisfies this condition.

- c) Calculate the price per minute for a call and the price for each text sent.

8. A lead cube, of side 10 cm, is melted down. During this process 8% of the metal is lost.

The remaining metal is then made into a cone, with radius 8 cm.

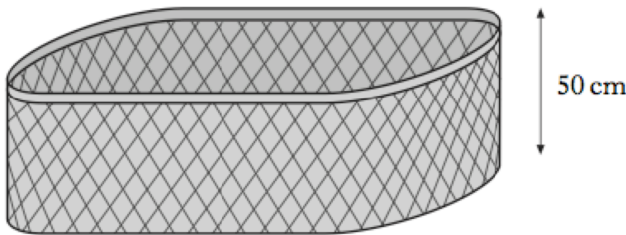
Calculate the height of this cone. Give your answer correct to 2 significant figures.

N5 Revision Calculator Practice Questions Mixed Set 2

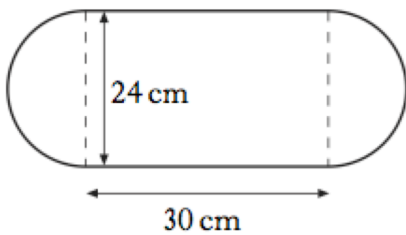
Questions from previous SQA Exams

1. A company buys machinery worth £750000. The value of the machinery depreciates by 20% per annum. The machinery will be replaced at the end of the year in which its value falls below half of its original value. After how many years should the machinery be replaced? You must explain your answer.

2. Jim Reid keeps his washing in a basket. The basket is in the shape of a prism. The height of the basket is 50 centimetres.

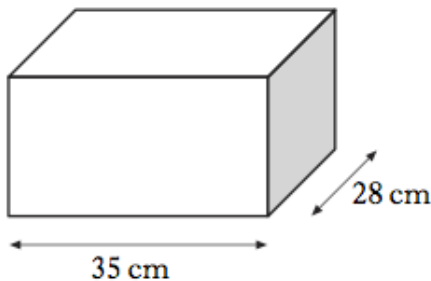


The cross section of the basket consists of a rectangle and two semi-circles with measurements as shown.



- a) Find the volume of the basket in cubic centimetres. Give your answer correct to three significant figures.

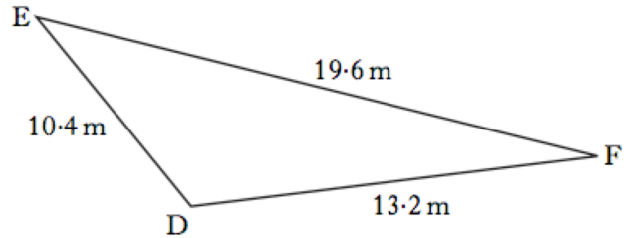
Jim keeps his ironing in a storage box which has a volume **half** that of the basket.



The storage box is in the shape of a cuboid, 35 cm long and 28 cm broad.

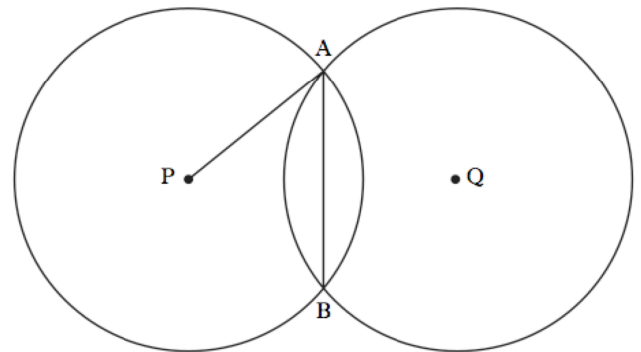
- b) Find the height of the storage box.
3. Solve the equation $5x^2 + 4x - 2 = 0$, giving the roots correct to 2 decimal places.

4. Triangle DEF is shown below. It has sides of length 10.4 metres, 13.2 metres and 19.6 metres.



Calculate the size of angle EDF. Do not use a scale drawing.

5. Solve the equation $4 \cos x^\circ + 3 = 0$, for $0 < x < 360$.
6. Two identical circles, with centres P and Q, intersect at A and B as shown in the diagram.



The radius of each circle is 10 cm. The length of the common chord, AB, is 12 cm.

Calculate PQ, the distance between the centres of the two circles.

7. A car is valued at £3780. This is 16% less than last year's value. What was the value of the car last year?

8. Tom and Samia are paid the same hourly rate. Harry is paid a third more per hour than Tom.

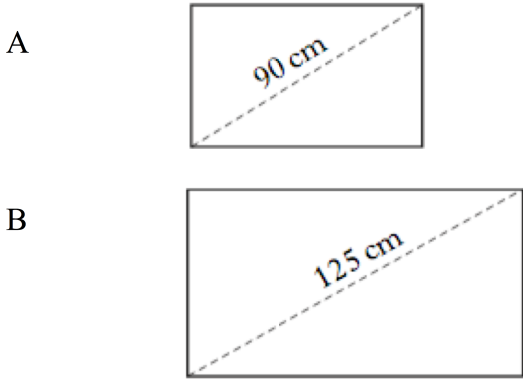
Tom worked 15 hours, Samia worked 8 hours and Harry worked 12 hours. They were paid a total of £429.

How much was Tom paid?

N5 Revision Calculator Practice Questions Mixed Set 3

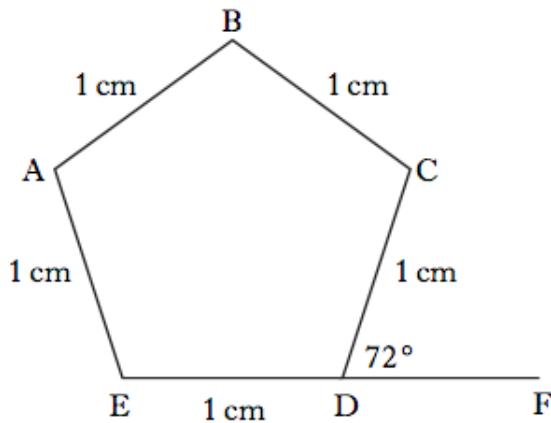
Questions from previous SQA Exams

1. Two rectangular solar panels, A and B, are mathematically similar. Panel A has a diagonal of 90 centimetres and an area of 4020 square centimetres.



A salesman claims that panel B, with a diagonal of 125 centimetres, will be double the area of panel A. Is this claim justified? Show all your working.

2. ABCDE is a regular pentagon with each side 1 centimetre. Angle CDF is 72° . EDF is a straight line.



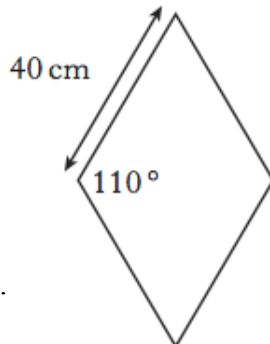
- a) Write down the size of angle ABC.
b) Calculate the length of AC.

3. Paving stones are in the shape of a rhombus.

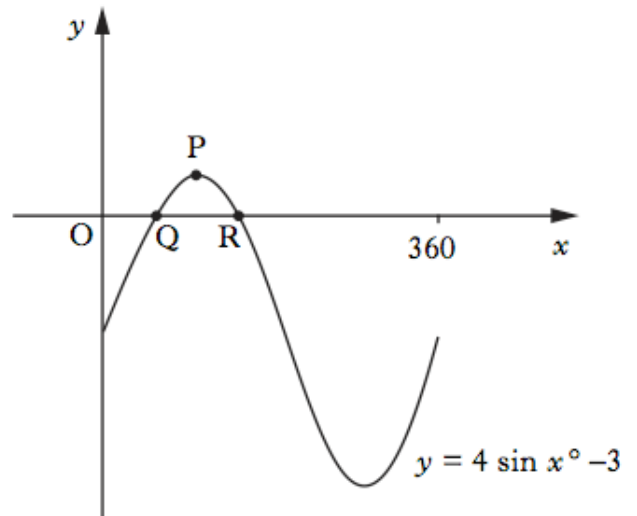
The side of each rhombus is 40 cm long.

The obtuse angle is 110° .

Find the area of one paving stone.



4. Part of the graph of $y = 4 \sin x^\circ - 3$ is shown below.

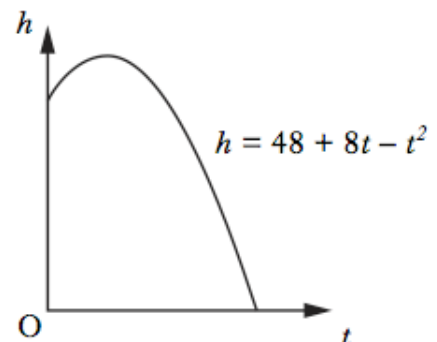


The graph cuts the x-axis at Q and R. P is the maximum turning point.

- a) Write down the coordinates of P.
b) Calculate the x-coordinates of Q and R.

5. The price for Paul's summer holiday is £894.40. The price includes a 4% booking fee. What is the price of his holiday without the booking fee?

6. The diagram shows the path of a flare after it is fired. The height, h metres above sea level, of the flare is given by $h = 48 + 8t - t^2$ where t is the number of seconds after firing.



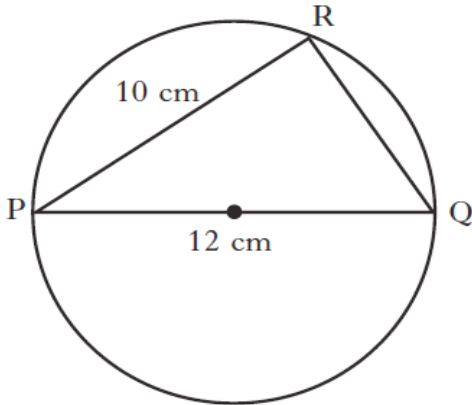
Calculate, algebraically, the time taken for the flare to enter the sea.

7. Solve the equation $x^2 + 2x = 9$. Give your answers correct to 1 decimal place.

N5 Revision Calculator Practice Questions Mixed Set 4

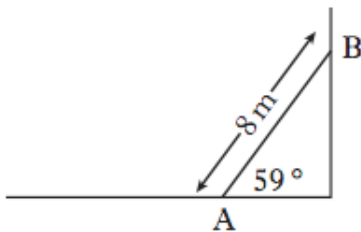
Questions from previous SQA Exams

1. In the diagram,
 PQ is the diameter of the circle
 PQ = 12 centimetres
 PR = 10 centimetres.

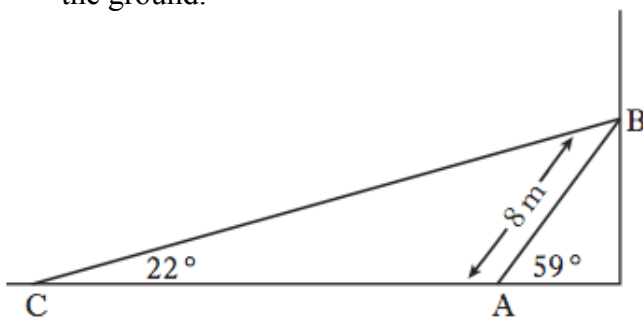


Calculate the length of QR.
 Give your answer as a surd
 in its simplest form.

2. A heavy metal beam, AB, rests against a vertical wall as shown.
 The length of the beam is 8 metres and it
 makes an angle of 59° with the ground.



A cable, CB, is fixed to the ground at C
 and is attached to the top of the beam at
 B. The cable makes an angle of 22° with
 the ground.



Calculate the length of cable CB.

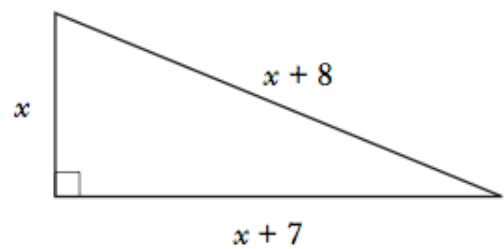
3. Shampoo is available in travel size
 and salon size bottles. The bottles
 are mathematically similar.



The travel size contains 200 ml and
 is 12 centimetres in height.
 The salon size contains 1600 ml.
 Calculate the height of the salon size
 bottle.

4. The depth of water, D metres, in a
 harbour is given by the formula
 $D = 3 + 1.75 \sin 30 h^\circ$
 where h is the number of hours after
 midnight.
 a) Calculate the depth of water at 5 am.
 b) Calculate the maximum difference in
 depth of the water in the harbour.
 Do not use a trial and improvement
 method.

5. A right-angled triangle has dimensions,
 in centimetres, as shown.



Calculate the value of x.

6. Expand fully and simplify $x(x - 1)^2$.

**N5 Revision Calculator
Practice Questions Mixed
Set 1 Answers**

- 1 $0.8^4 \times 750000$
 $= 307200$
 4 years since $307200 < 375000$
- 2 a) Mean = 101
 SD = 1.69
 b) The second sample has on average, a greater number of pins.

 The higher standard deviation of the second sample indicates that the number of pins in a box is more varied.
- 3 -2.6 , 0.9
- 4 21.6 cm
- 5 58° , 238°
- 6 42.7 cm
- 7 a) $280x + 70y = 5250$
 b) $210x + 40y = 3800$
 c) Calls 16p per min
 Texts 11 p each
- 8 14 cm

**N5 Revision Calculator
Practice Questions Mixed
Set 3 Answers**

- 1 $k = 125/90$
 $A = k^2 \times 4020 = 7754.6$
 No since 7754.6 is not equal to 8040
- 2 a) 108°
 b) 1.62 cm
- 3 1503.5 cm^2
- 4 a) $P(90, 1)$
 b) $48.6^\circ, 131.4^\circ$
- 5 £86
- 6 12 seconds
- 7 -4.2, 2.2

**N5 Revision Calculator
Practice Questions Mixed
Set 2 Answers**

- 1 £ 9625.93
- 2 a) 586000 cm^3
 b) 29.9 cm
- 3 0.35 , -1.15
- 4 111.8°
- 5 138.6, 221.4
- 6 16 cm
- 7 £4500
- 8 £165

**N5 Revision Calculator
Practice Questions Mixed
Set 4 Answers**

- 1 $2\sqrt{11}$
- 2 18.3 m
- 3 24 cm
- 4 a) 3.875 m
 b) 3.5 m
- 5 $x = 5$
- 6 $x^3 - 2x^2 + x$