



Geometry Calculator

Revision Pack



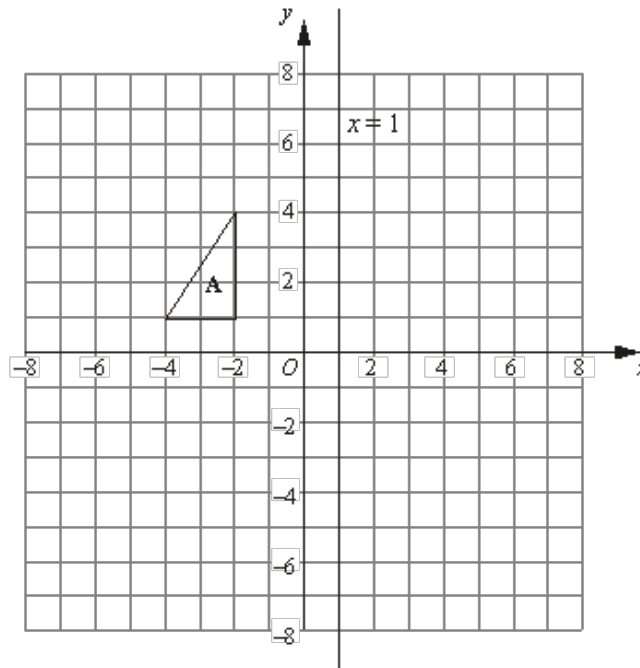
34 minutes



34 marks

To use alongside mymaths.co.uk and livemaths.co.uk to revise for your GCSE exam

Q1.



Triangle **A** is reflected in the x -axis to give triangle **B**.
Triangle **B** is reflected in the line $x = 1$ to give triangle **C**.

Describe the **single** transformation that takes triangle **A** to triangle **C**.

.....

(Total 3 marks)

Q2.

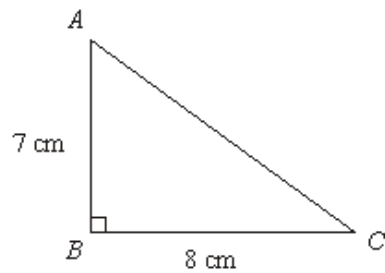


Diagram **NOT** accurately drawn

ABC is a right-angled triangle.
 $AB = 7$ cm,
 $BC = 8$ cm.

(a) Work out the area of the triangle.

..... cm^2

(2)

(b) Work out the length of AC .
Give your answer correct to 2 decimal places.

..... cm

(3)

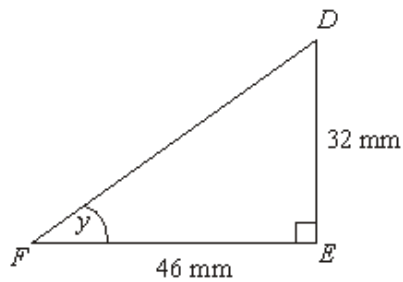


Diagram **NOT** accurately drawn

DEF is another right-angled triangle.

$DE = 32$ mm,

$FE = 46$ mm.

- (c) Calculate the size of angle y
Give your answer correct to 1 decimal place.

.....°

(3)
(Total 8 marks)

Q3.

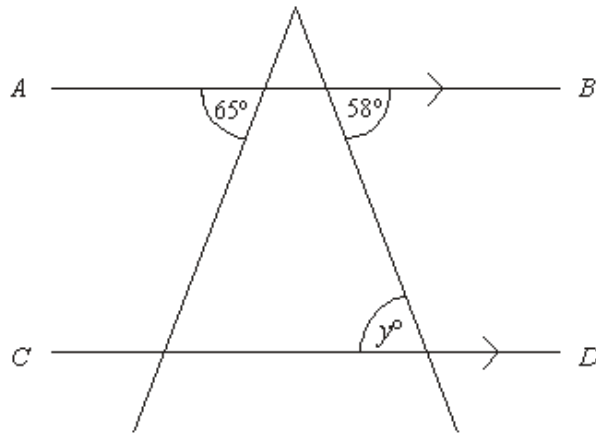


Diagram **NOT** accurately drawn

AB is parallel to CD .

- (i) Write down the value of y .

.....

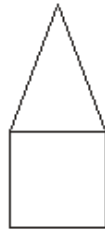
- (ii) Give a reason for your answer.

.....

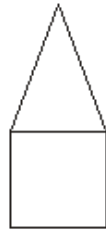
(Total 2 marks)

Q4. Here are the front elevation, side elevation and the plan of a 3-D shape.

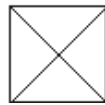
Front elevation



Side elevation



Plan



In the space below, draw a sketch of the 3-D shape.

(Total 2 marks)

Q5.

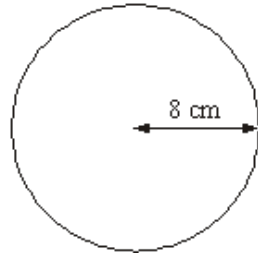


Diagram **NOT** accurately drawn

The radius of this circle is 8 cm.

Work out the circumference of the circle.
Give your answer correct to 2 decimal places.

..... cm

(Total 2 marks)

Q6. (a) Draw the locus of all points which are equidistant from the points *A* and *B*.

A ×

× *B*

(2)

(b) Draw the locus of all points that are exactly 3 cm from the line PQ .



(2)
(Total 4 marks)

Q7.

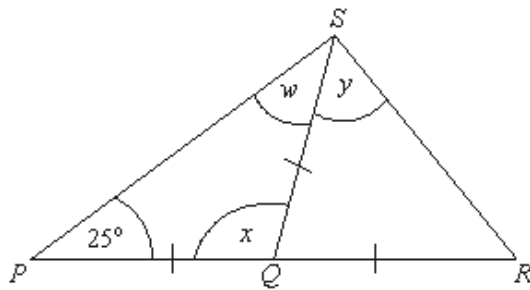


Diagram **NOT** accurately drawn

PQR is a straight line.

$PQ = QS = QR$.

Angle $SPQ = 25^\circ$.

(a) (i) Write down the size of angle w .

..... $^\circ$

(ii) Work out the size of angle x .

..... $^\circ$

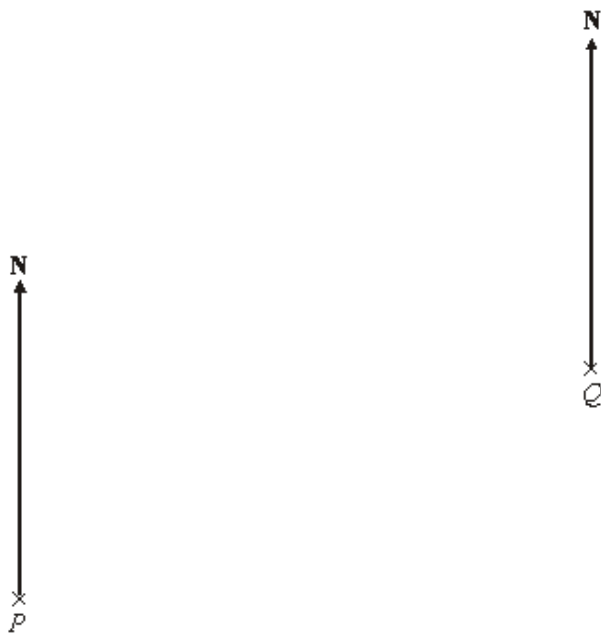
(2)

(b) Work out the size of angle y .

.....°

(2)
(Total 4 marks)

Q8. The diagram shows the position of two boats, P and Q .



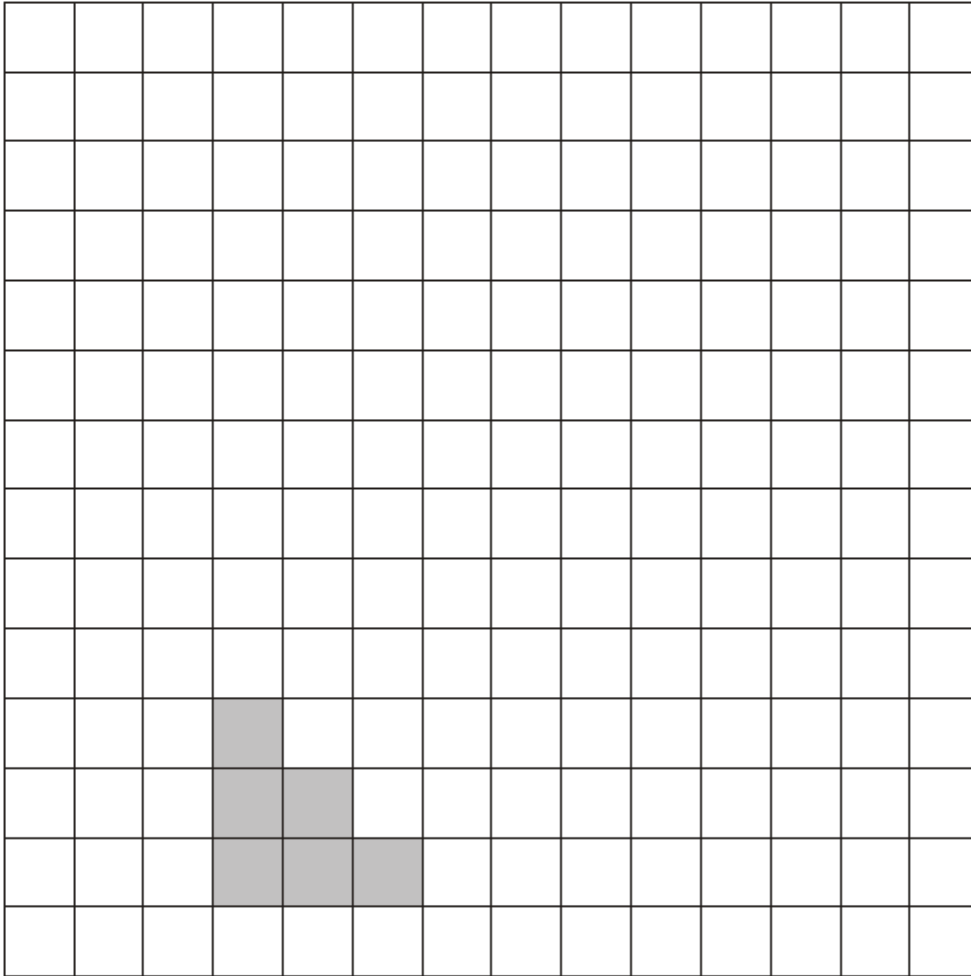
The bearing of a boat R from boat P is 060°

The bearing of boat R from boat Q is 310°

In the space above, draw an accurate diagram to show the position of boat R .
Mark the position of boat R with a cross (\times). Label it R .

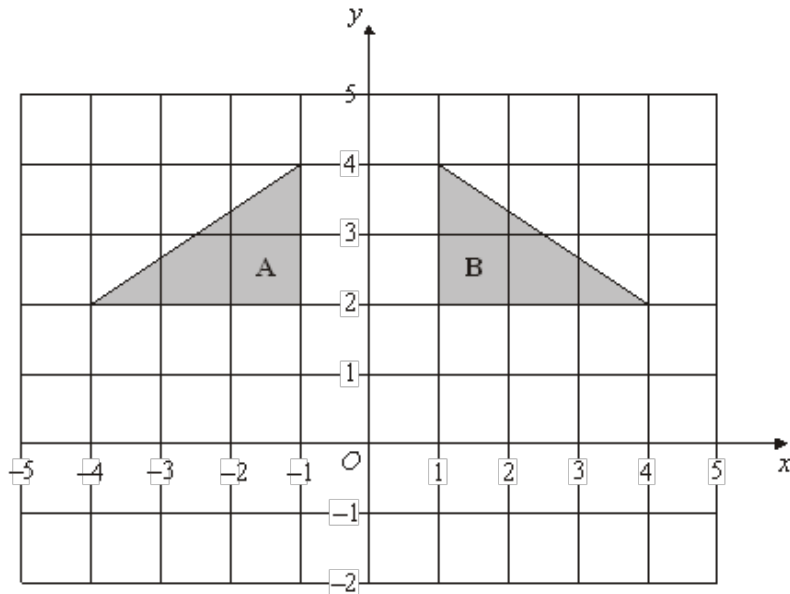
(Total 3 marks)

Q9.



(a) On the grid, draw an enlargement, scale factor 2, of the shaded shape.

(2)

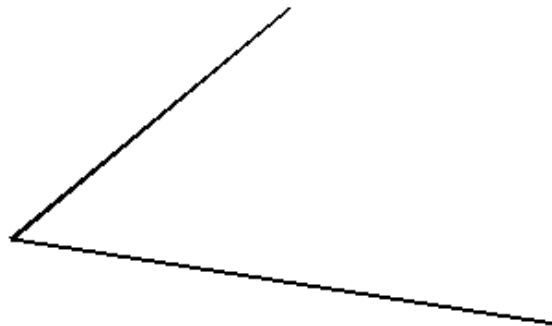


(b) Describe fully the single transformation that maps triangle A onto triangle B.

.....

(2)
(Total 4 marks)

Q10. Use ruler and compasses to **construct** the bisector of this angle.
You must show all your construction lines.



(Total 2 marks)

M1.

Working	Answer	Mark	Additional Guidance
B at $(-2, -1)$, $(-4, -1)$, $(-2, -4)$ C at $(4, -1)$, $(6, -1)$, $(4, -4)$	Rotation 180° about $(1, 0)$	3	B1 for rotation B1 for 180° B1 for centre $(1,0)$ OR B1 Enlargement B1 Scale Factor -1 Accept -1 on its own if it is clear candidate is describing an enlargement B1 Centre $(1,0)$ Ignore diagram unless no marks scored, in which case SC B1 for showing both B and C correctly NB Award no marks for the description if more than one transformation is given
			Total for Question: 3 marks

M2.

	Working	Answer	Mark	Additional Guidance
(a)	$\frac{1}{2} \times 7 \times 8$ $= \frac{1}{2} \times 56 = 28$	28	2	M1 $\frac{1}{2} \times 7 \times 8$ or $- \times 7 \times 8 \times \sin 90^\circ$ A1 cao
(b)	$8^2 + 7^2$ $64 + 49 = 113$ $\sqrt{113} = 10.630145$	10.63	3	M1 $8^2 + 7^2$ or $64+49$ or 113 or $8^2 + 7^2 - 2 \times 7 \times 8 \times \cos 90$ M1 $\sqrt{(64 + 49)}$ or $\sqrt{113}$ where it is clear that the 8 and 7 have been squared A1 Any answer in 10.63 – 10.631 inclusive SC B1 10.6 with no working with or without a scale drawing
(c)	$\tan y = 32/46 = 0.6956$ $\tan^{-1} 0.6956 = 34.82^\circ$	34.8	3	M1 $\tan (y) = \frac{32}{46}$ M1 $\tan^{-1} 0.695(6)$ or $\tan^{-1} \left(\frac{32}{46} \right)$ or $\tan^{-1} \frac{32}{46}$ oe (e.g. 'shift tan' or 'inv tan' for \tan^{-1}) A1 $34.79^\circ - 34.85^\circ$ Or M1 for $\sqrt{(32^2 + 46^2)}$ (=56.03(5..)) and either $\frac{\sin 90}{56(0..)} = \frac{\sin y}{32}$ or $\frac{56(0..)}{\sin 90} = \frac{32}{\sin y}$ M1 $(y) = \sin^{-1} \left(\frac{32 \times \sin 90}{56(0..)} \right)$ (= $\sin^{-1}(0.571(06..)$) A1 $34.79^\circ - 34.85^\circ$ SC1 B2 Radians 0.607-0.608 B2 Gradians 38.65 – 38.7 (both using tan) Alternative methods using Pythagoras and then sin or cos must have a fully correct method for Pythagoras and sin/cos before they score the first M1. The trigonometry could be SOHCAHTOA or Sine rule/Cosine rule
Total for Question: 8 marks				

M3.

Answer	Mark	Additional Guidance
58° Reason	2	B1 cao B1 (dep) alternate or Z angle (oe)
Total for Question: 2 marks		

M4.

Answer	Mark	Additional Guidance
Sketch	2	B2 complete 3-D sketch (B1 for partial 3-D sketch e.g. pyramid or base only, or a shape with a box and 2 pyramids either end) NB: If more than one shape is shown: For 2 marks there should be no choices or alternatives other than those also worth 2 marks; if there are several diagrams of which at least one is worth 1 or 2 marks, award B1 . 2D diagrams get B0.
Total for Question: 2 marks		

M5.

Working	Answer	Mark	Additional Guidance
$C = 2 \times \pi \times 8$	50.24-50.29	2	M1 $C = 2 \times \pi \times 8$ or $\pi \times 16$ oe A1 50.24-50.29
Total for Question: 2 marks			

M6.

	Answer	Mark	Additional Guidance
(a)	Within guide	2	B2 for line at least 2cm long within inner guideline B1 for line at least 2cm long completely or partially outside inner guidelines but within outer guidelines or line within inner guidelines of length less than 2cm or at least 3 relevant points within inner guidelines or 2 pairs of relevant intersecting arcs within inner guidelines. NB : Ignore any additional lines or drawings
(b)	Within guide	2	B2 for fully correct shape within or touching guidelines (B1 two correct parallel lines within or touching guidelines allow or two correct semicircles at ends within or touching guidelines allow or correct shape outside guidelines) NB: Accept dotted lines. Ignore any additional lines or drawings eg. Full circles drawn at ends
Total for Question: 4 marks			

M7.

	Working	Answer	Mark	Additional Guidance
(a)(i)		25	2	B1 cao
(ii)	$180 - 25 = '25'$	130		B1 ft for $155 - '(i)'$
(b)	$180 - 130 = 50$ $y = \frac{1}{2} (180 - 50)$	65	2	M1 $\frac{1}{2}$ "(a)(ii)" or any complete correct method A1 ft from (a)(ii)
Total for Question: 4 marks				

M8.

Answer	Mark	Additional Guidance
diagram	3	M1 for line drawn or point marked within guidelines from P M1 for line drawn or point marked within guidelines from Q up to top guideline from P A1 for point indicated within region where guidelines intersect
Total for Question: 3 marks		

M9.

	Answer	Mark	Additional Guidance
(a)	Correct shape	2	B2 for correct shape; any orientation. (B1 for any two sides correct or all correct for scale factor other than 1 or 2), tolerance to within half square
(b)	Reflection in line $x = 0$	2	B1 for reflection, reflect, reflected. B1 for line $x = 0$ or y -axis NB: more than one transformation should be awarded 0 marks.
Total for Question: 4 marks			

M10.

Answer	Mark	Additional Guidance
construction	2	M1 for a pair of arcs drawn from the same centre on 2 lines at same distance from meeting point; or a single arc crossing both lines; using an arc with a radius which is the length of the shorter line will imply an intersection with the end of that line. ($\pm 2\text{mm}$) A1 for bisector ($\pm 2^\circ$) and correct arcs SC: B1 for bisector ($\pm 2^\circ$) with no arcs, or incorrect arcs if M0 awarded. Accept bisectors that are dashed or dotted.
Total for Question: 2 marks		

