

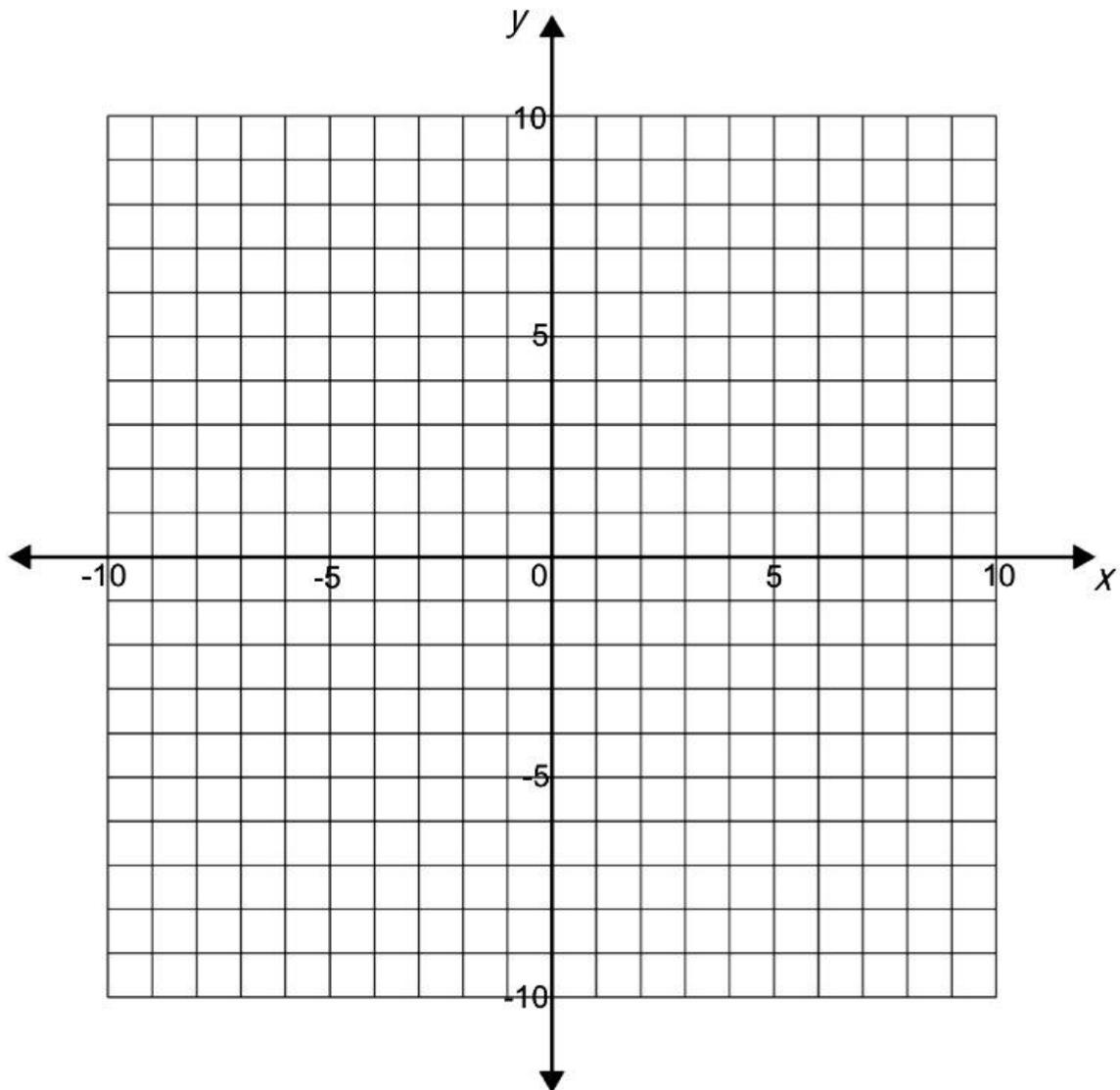
## National 4 Relationships

### Practice Test One

1 (a) In your jotter, neatly copy and complete the table below for  $y = 3x - 2$

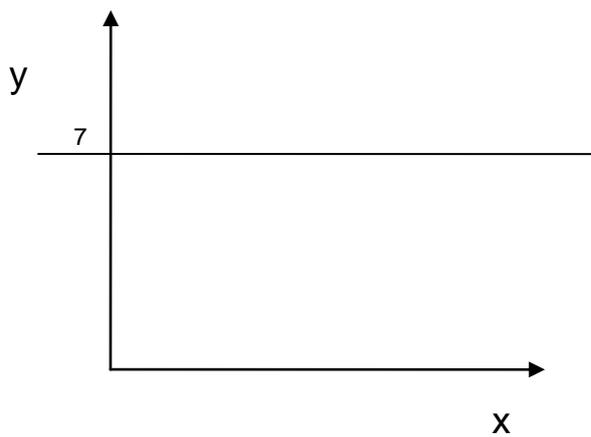
x	-2	-1	0	1	2	3	4
y							

(b) In your jotter, neatly draw a coordinate diagram as shown below.



(c) On your coordinate diagram plot the line  $y = 3x - 2$

2 Write down the equation of line below.



3 Solve the following equation:  $3y + 6 = -9$

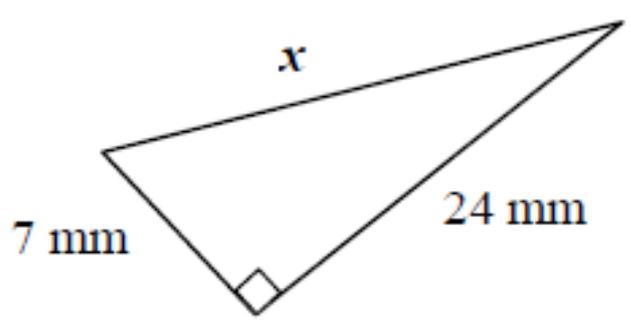
4 The equation relating Distance, Speed and Time is:  $D = ST$   
Change the subject of the formula to  $T$ .

5 Change the subject of the formula:

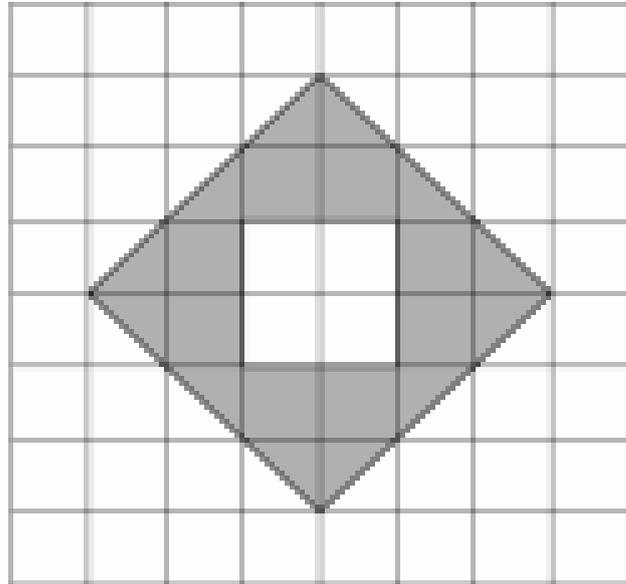
$$A = 4E + 2$$

to  $E$ .

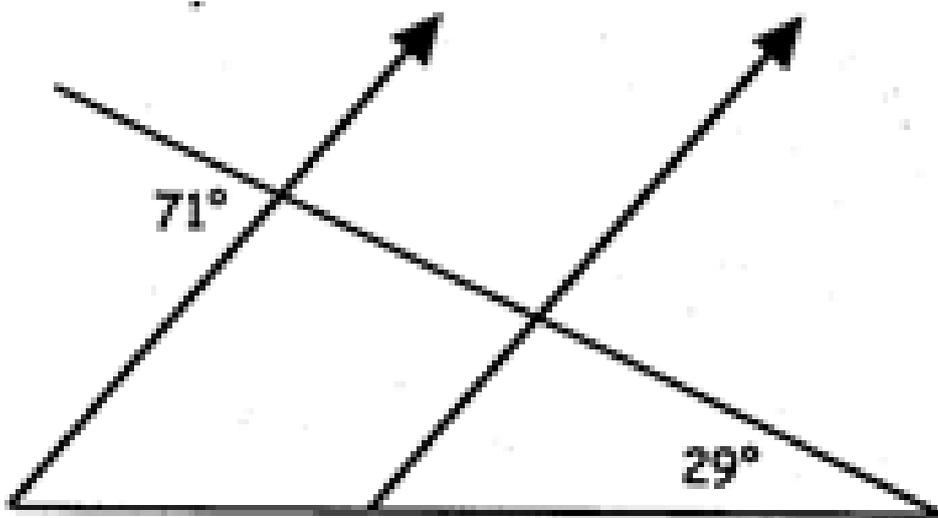
6 Find  $x$  in the triangle



7 In your jotter, neatly draw an enlargement of the shape below using a scale factor of  $\frac{3}{2}$

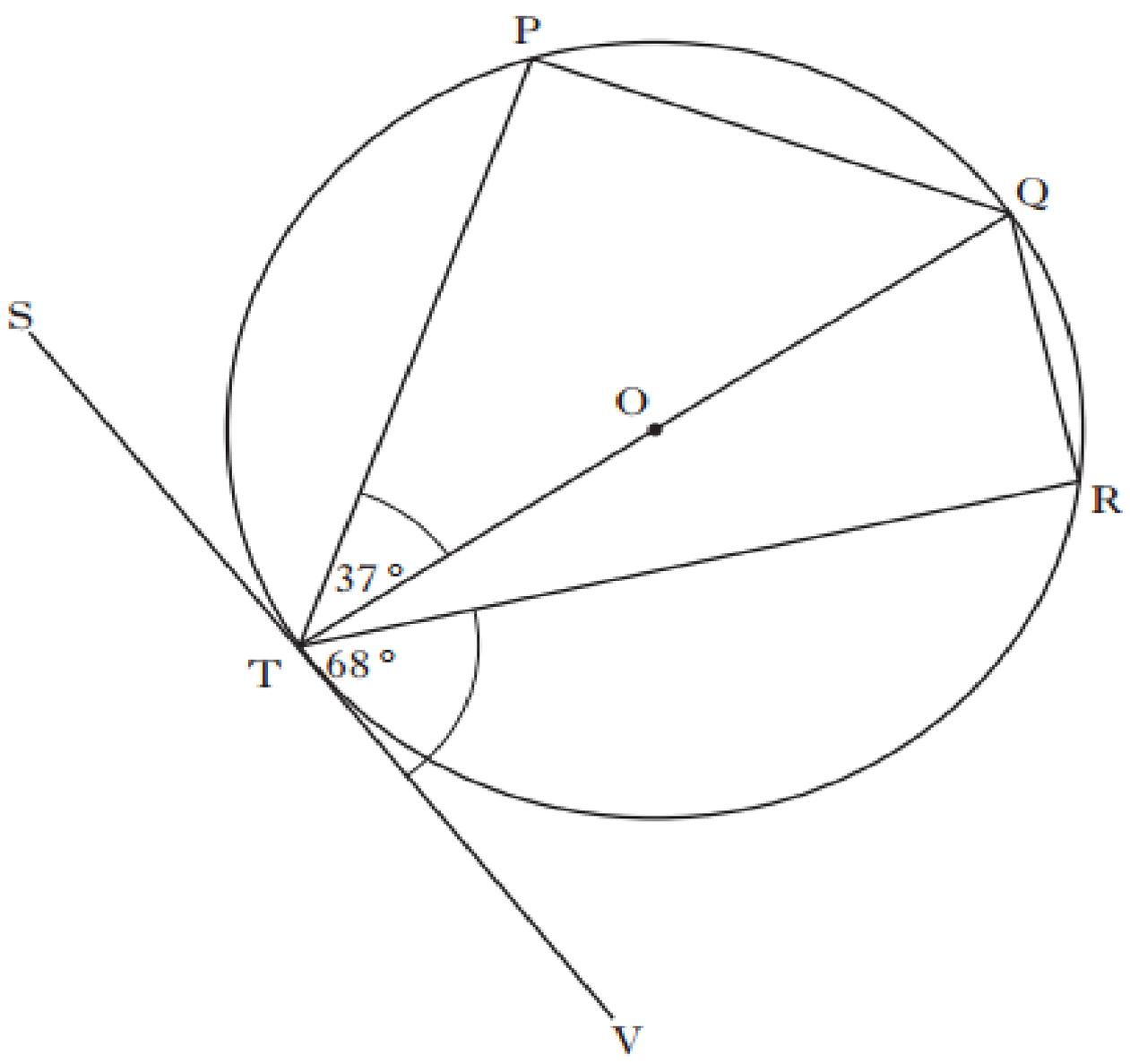


8 In your jotter, neatly draw the diagram below and then calculate the size of all the missing angles. Write the angles on your diagram.



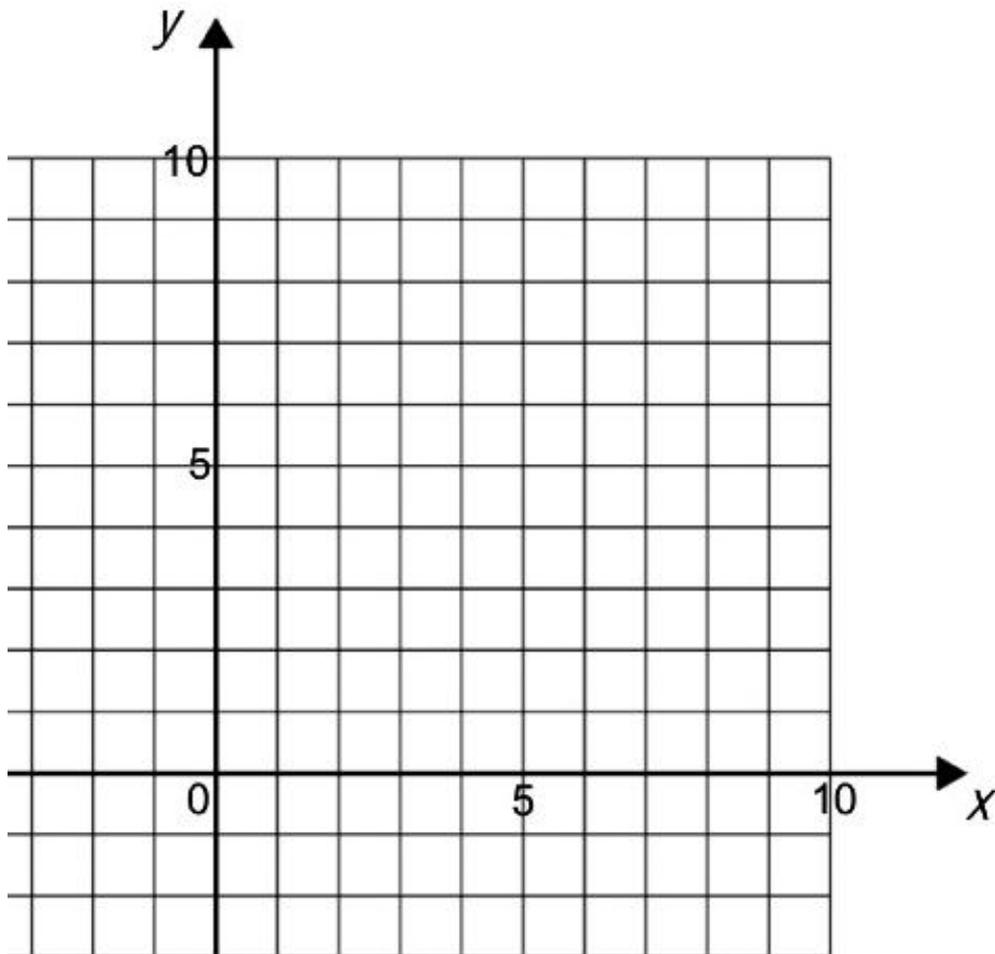
9 The tangent  $SV$  touches the circle, centre  $O$ , at  $T$ . Angle  $PTQ$  is  $37^\circ$  and Angle  $VTR$  is  $68^\circ$ .

In your jotter, neatly draw the diagram below.



Calculate the size of angle  $PQR$

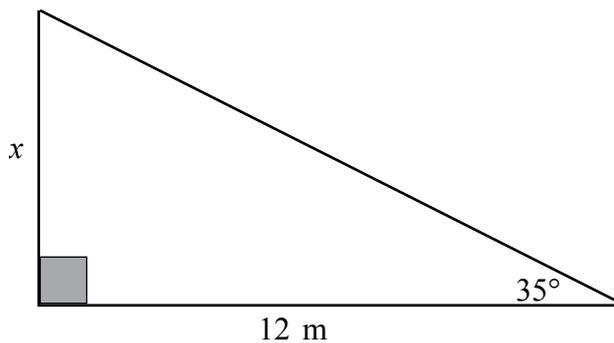
10 (a) In your jotter, neatly draw a coordinate diagram as shown below .



(b) Plot the points (1, 2) and (8, 7)

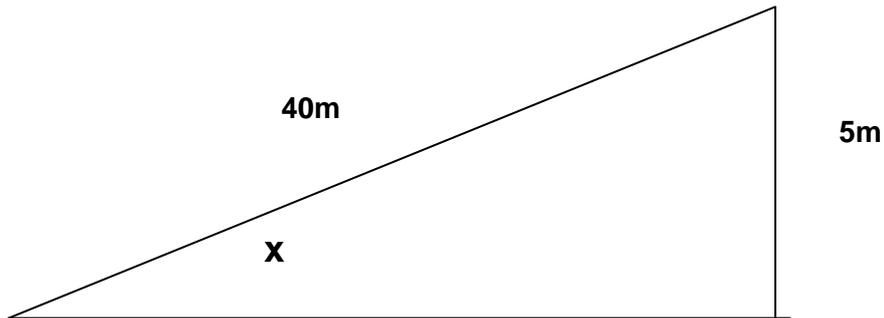
(c) Join up the line and then calculate the length of the line.

11 Calculate the length of side  $x$  in the right-angled triangle below.



12 A ramp 40 m long slopes at an angle of  $x^\circ$

The height of the ramp is 5m



(a) Calculate angle  $x^\circ$ .

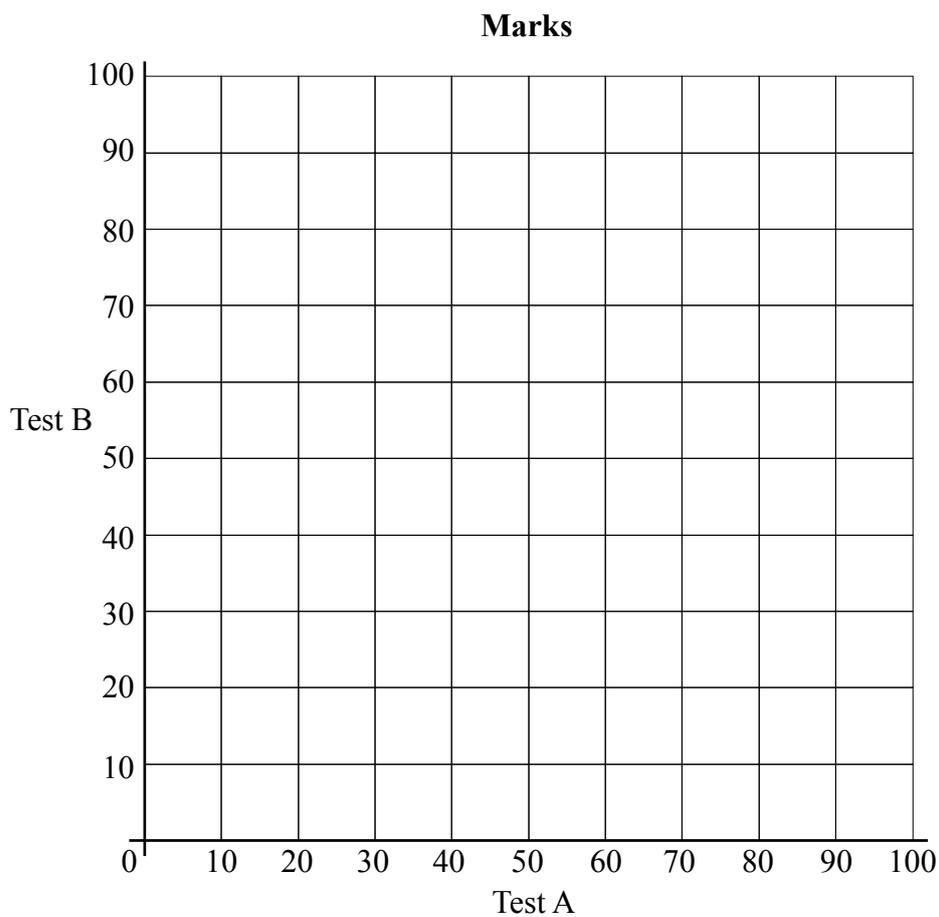
(b) For safety reasons angle  $x^\circ$  should be less than 6 degrees.

Can the angle of the ramp be considered safe? (Justify your answer)

13 A class of students sat two tests in the same subject. Here are the marks for six of the students who sat the tests:

Student	Test A	Test B
Andy	40	40
Mary	60	85
Karen	35	30
Amy	72	90
Steve	58	70
Sarah	50	60

(a) In your jotter, neatly copy the grid below:



- (b) Draw a scatter graph of the marks in the table on your grid.
- (c) Draw a best fitting straight line for this scatter graph.
- (d) Keira scored 65 marks for Test A. Use your line to estimate the number of marks she may have scored in Test B.
- (e) Barry scored 75 for Test B but was absent for test A. His teacher estimated his mark to be 50 for test A. Is this a reasonable estimate?