Corbettmaths

100 Days to Go
GCSE Higher
Revision Questions

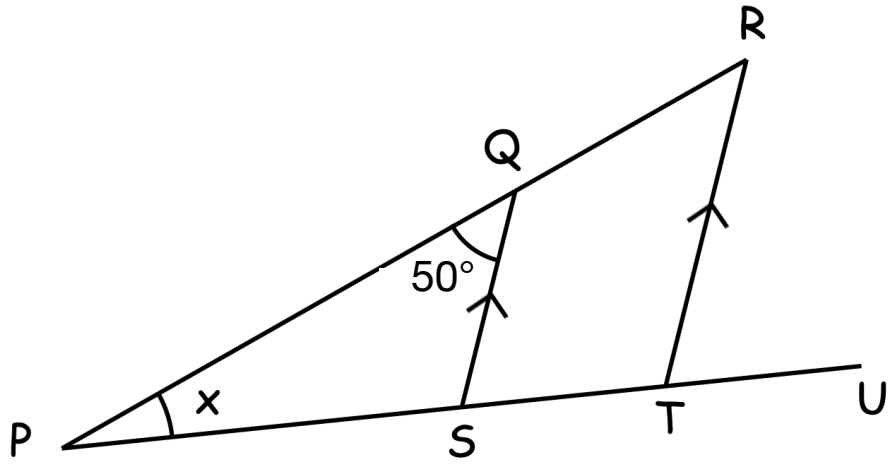
Part 2

100 Days to Go

Answers

See 21 Days to Go

1. PQR and PSTU are straight lines.



QS and RT are parallel.

Angle PQS = 50°

Angle RTS : Angle RTU = 3 : 2

Work out the size of angle RPU
Give reasons for your answer.

.....°

(5)

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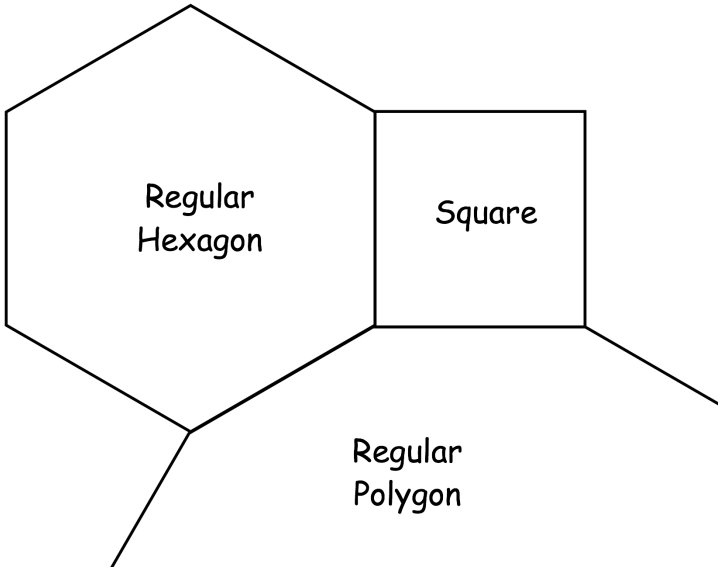
2. The line passing through (1, p) and (5, 1) has a gradient of $\frac{3}{4}$

Find the value of p.

.....

(3)

3. Shown below is part of a regular polygon, a regular hexagon and a square.

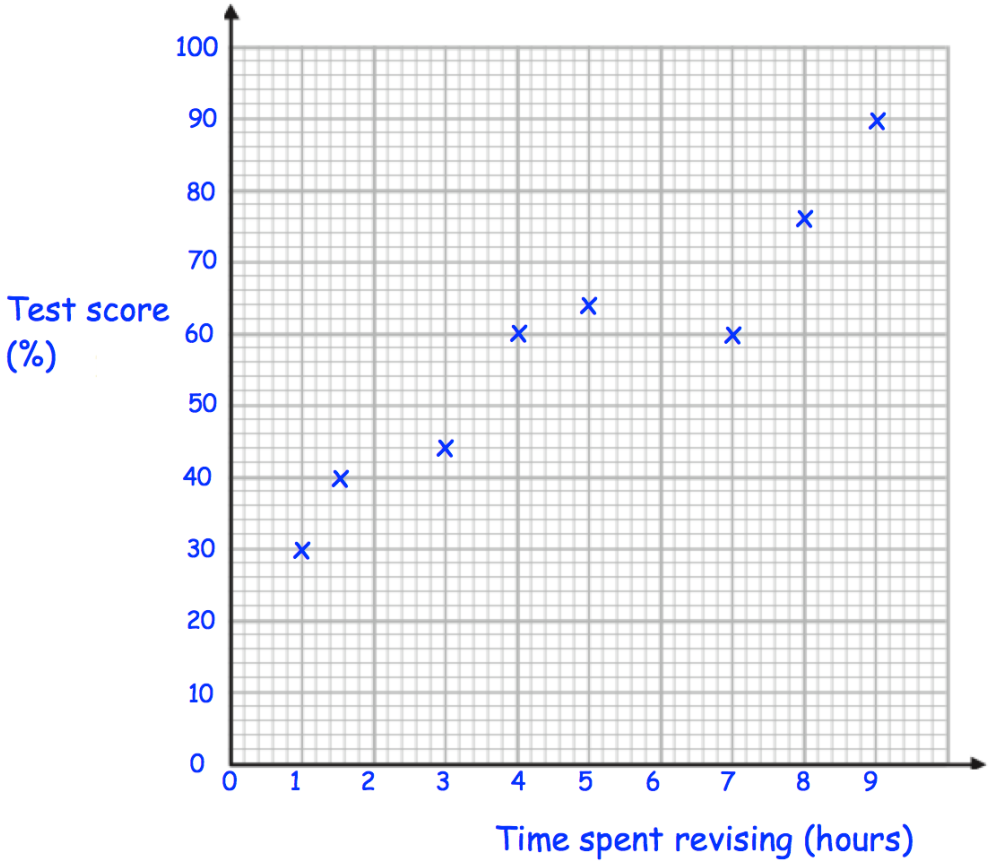


Work out how many sides the regular polygon has.

.....

(4)

4. The scatter graph below shows information about the number of hours spent revising for a test and the test result for a group of 8 students.



Explain why it might not be sensible to use the scatter graph to estimate the score for a student that spent 15 hours revising.

.....

.....

(2)

5. Bag A contains 5x coins.
Bag B contains 3x coins.
8 coins are taken from Bag B and put into Bag A
The ratio of coins in Bag A to Bag B is now 11:5

Work out the total number of coins.

.....

(4)

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6. Solve $x^2 - 6x + 2 < 42$

.....

(3)

7. The function f is such that $f(x) = kx + 3$

The function g is such that $g(x) = 2x - 4$

Given that $gf(2) = 34$

work out the value of k

.....

(3)

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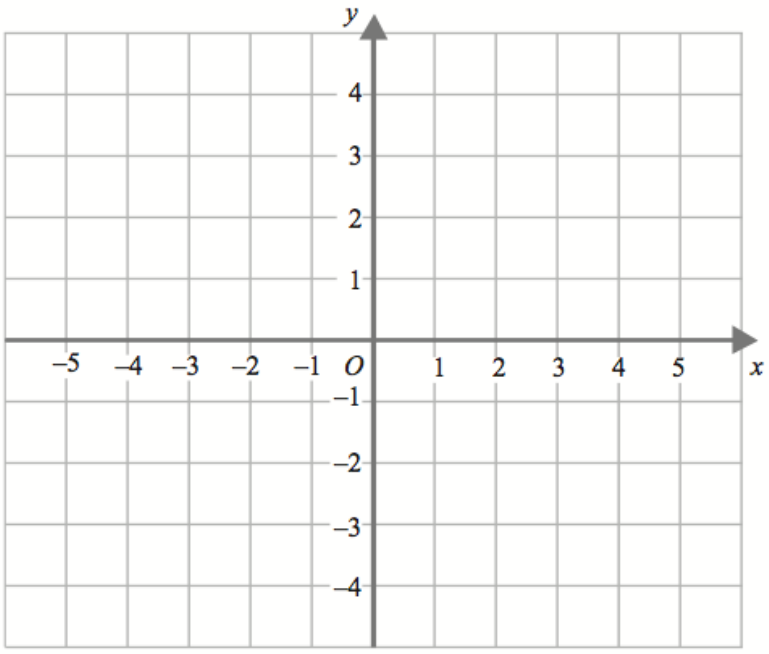
8. On the grid, clearly label the region which satisfies all three inequalities below

$x \leq 2$ $y \leq 2x - 2$ $x + y + 2 \geq 0$



(3)

9. An empty bucket weighs 800g.

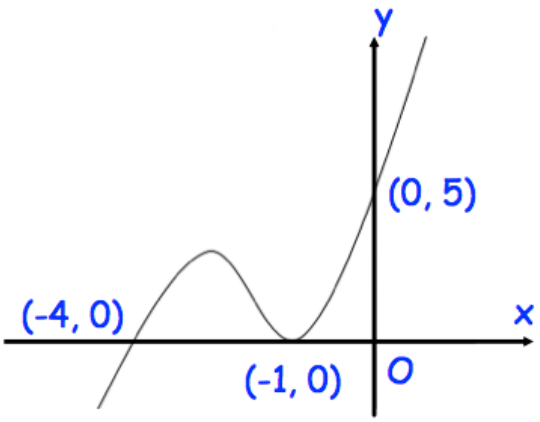
The weight of the bucket increases to 2.1kg when filled with water.

Calculate the percentage increase in the weight of the bucket.
Give your answer to two significant figures.

.....%

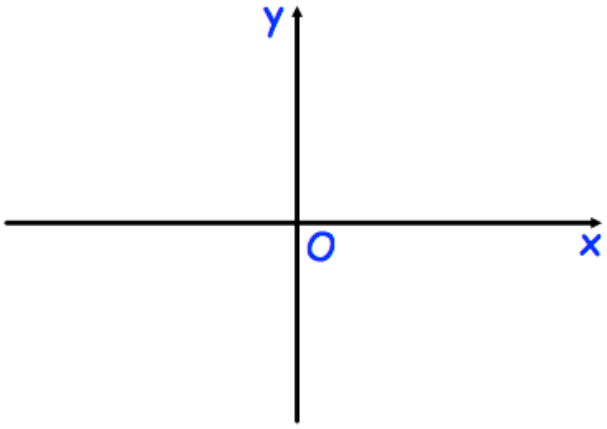
(3)

10. Shown below is the curve with equation y = f(x).
The curve passes through the points (–4, 0), (–1, 0) and (0, 5)



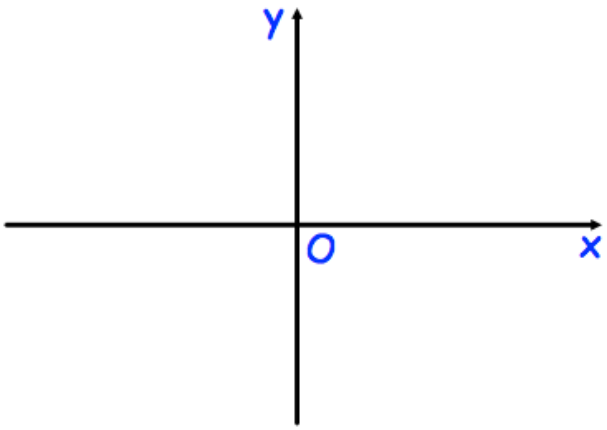
Sketch the curve with equation:

(a) y = f(x + 1)



(2)

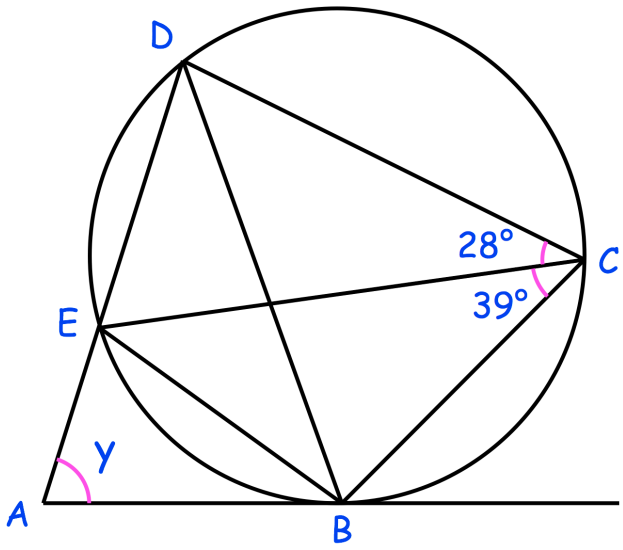
(b) y = f(–x)



(2)

11. Shown below is cyclic quadrilateral BCDE

AB is a tangent to the circle.
AED is a straight line.



Work out the size of angle y.

.....

(3)

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12. Solve $4x^2 = 8x + 7$

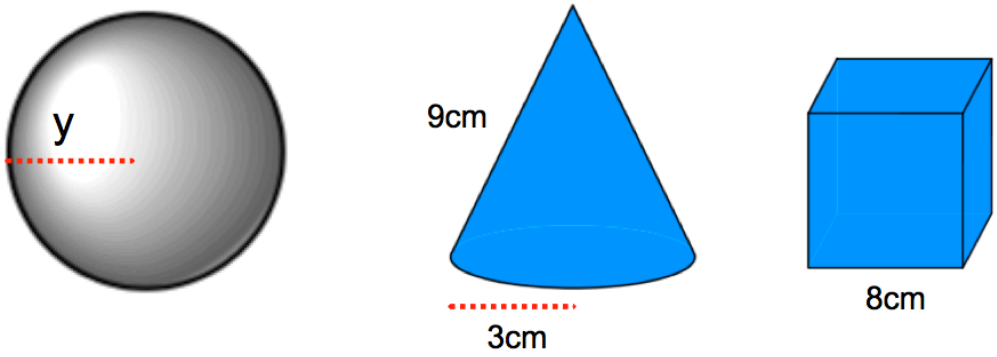
Give your answers to 2 decimal places.

.....

(4)

13. Shown below is a sphere, cone and cube.

The surface area of the sphere is equal to
the sum the surface areas of the cone and cube.

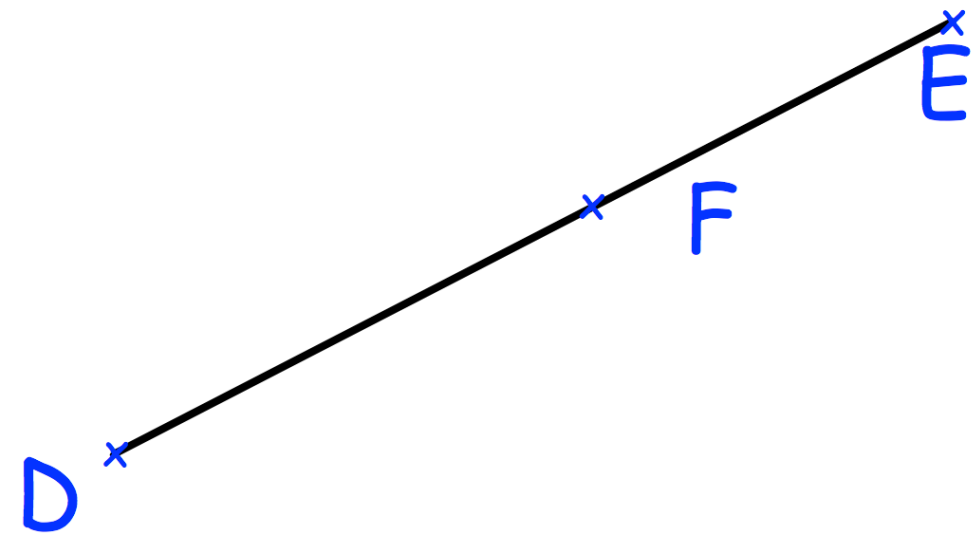


Find the radius of the sphere, y.

.....cm

(5)

14.

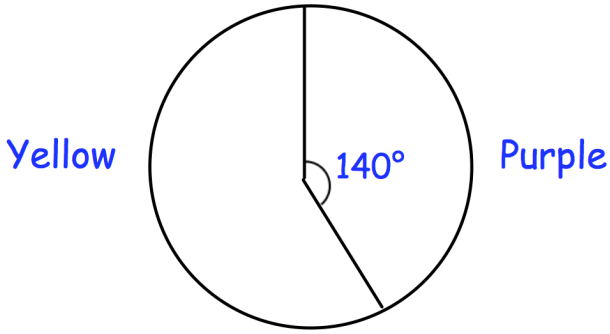


Construct the perpendicular to DE that passes through the point F.

(2)

15. In an election there are two parties to vote for, the Yellow party or the Purple party.

The pie chart below shows how people voted.



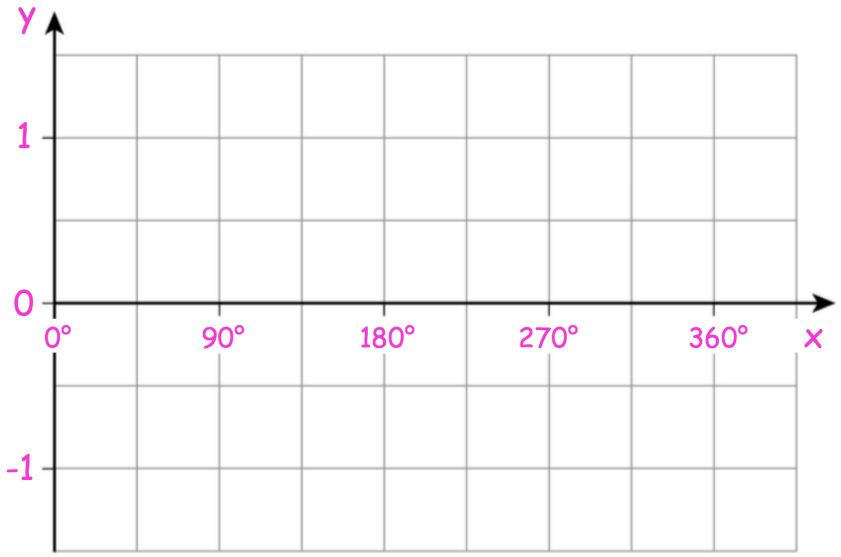
1016 more people voted for the Yellow party than the Purple party.

Work out the total number of votes.

.....

(3)

16. Sketch the graph of the function $y = cosx$ for $0° \leq x \leq 360°$



(2)

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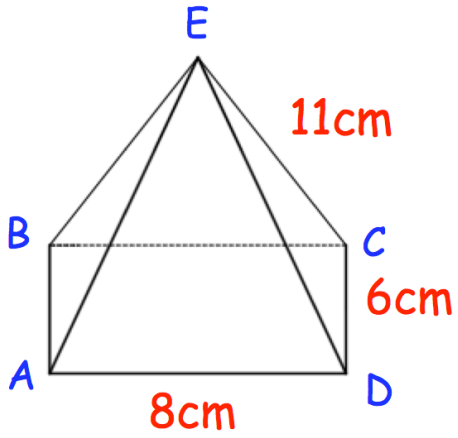
17. Solve the equations

$x^2 + y^2 = 25$
$x + y = 7$

.....

(5)

18. Shown below is a rectangular-based pyramid.
The apex E is directly over the centre of the base.



AD = 8cm
CD = 6cm
CE = 11cm

(a) Calculate the height of the pyramid

.....cm
(3)

(b) Calculate the angle between face ABE and the based ABCD

.....°
(3)

19. (a) Show the equation $x^3 + 3x^2 + 5 = 0$ can be rearranged to give

$$x = -3 - \frac{5}{x^2}$$

(2)

(b) Using $x_{n+1} = -3 - \frac{5}{(x_n)^2}$

with $x_0 = -4$

find the values of x_1, x_2 and x_3

x_1 = ...

x_2 = ...

x_3 = ...

(3)

(c) Explain the relationship between the values of x_1, x_2 and x_3 and the equation $x^3 + 3x^2 + 5 = 0$

.....

.....

(2)

20. Work out an expression for the *n*th term of this quadratic sequence

3 14 31 54 ...

Give your answer in the form $an^2 + bn + c$

.....

(3)

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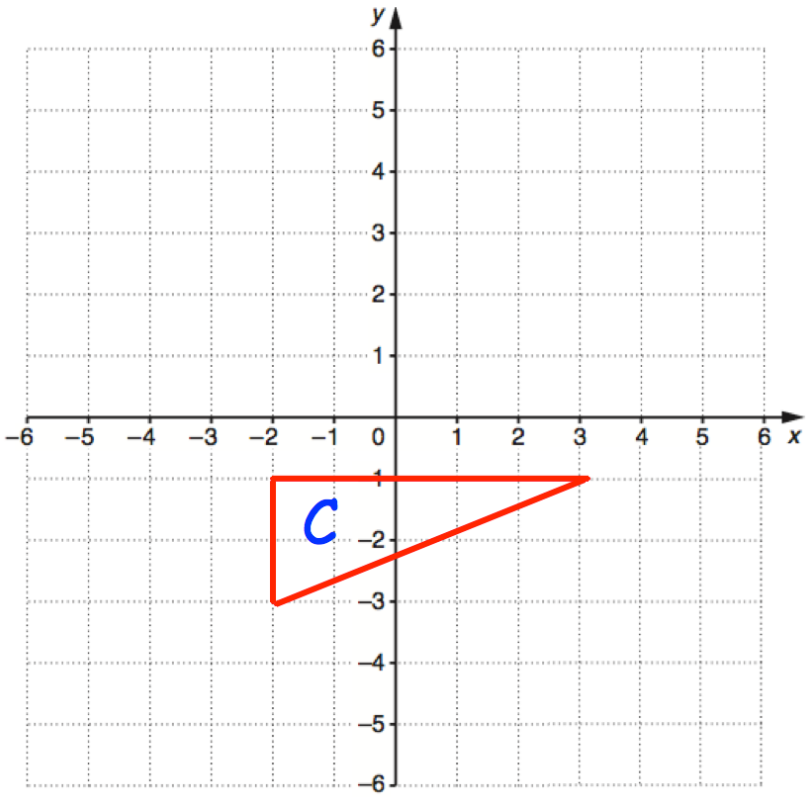
21. Reflect triangle C in the line $y = -x$



(2)

22. Matthew is training for a race.
He runs 3 days in one week.

Matthew runs $1\frac{1}{2}$ miles on Monday.

Then he runs $1\frac{2}{3}$ miles on Thursday.

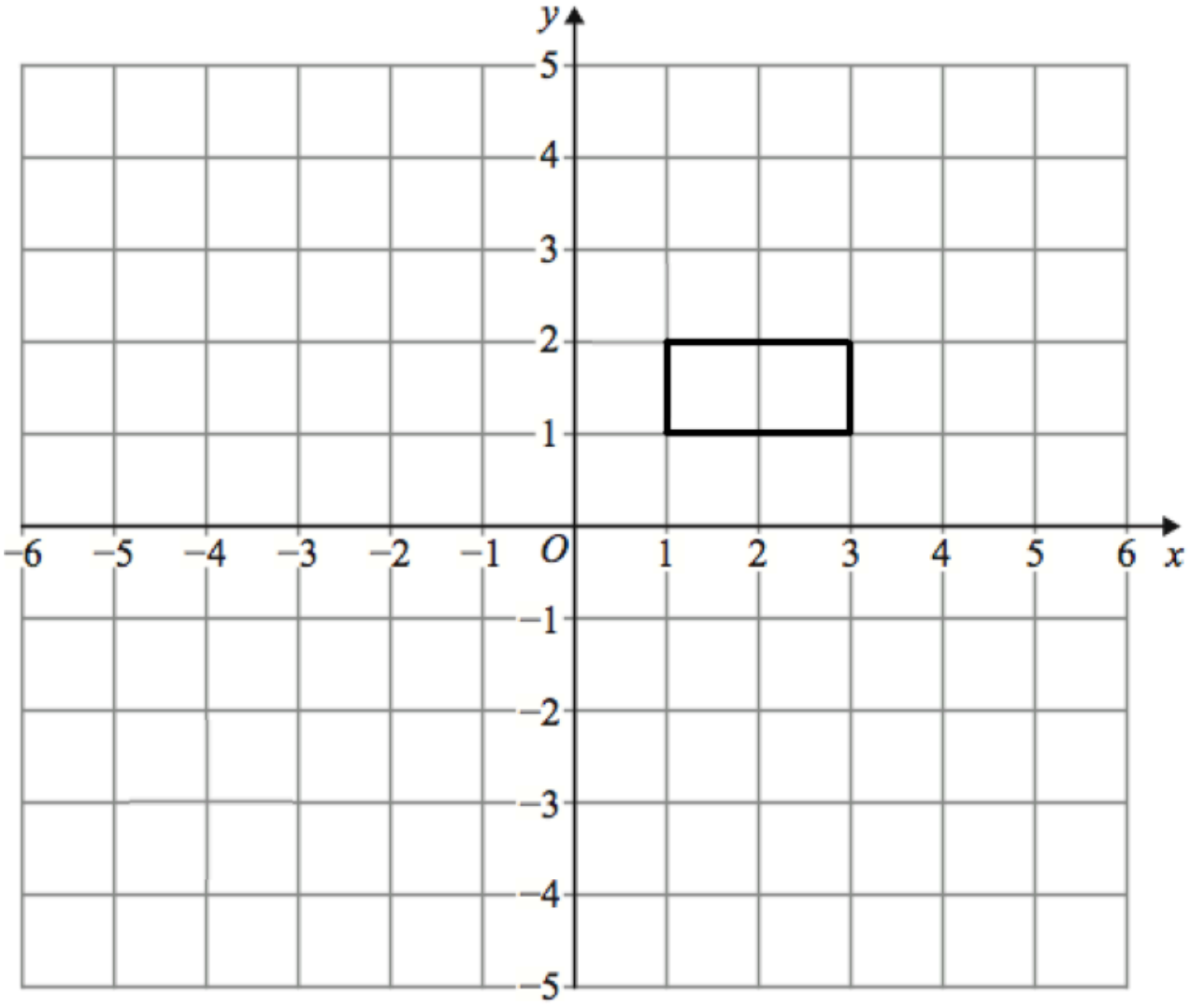
Finally he runs $2\frac{1}{5}$ miles on Sunday.

Work out how far Matthew ran in total.

.....miles

(4)

23. Shown below is a rectangle drawn on a coordinate grid.



Enlarge the rectangle by scale factor –2, using the origin as centre of enlargement.

(3)

24. Rationalise the denominator of

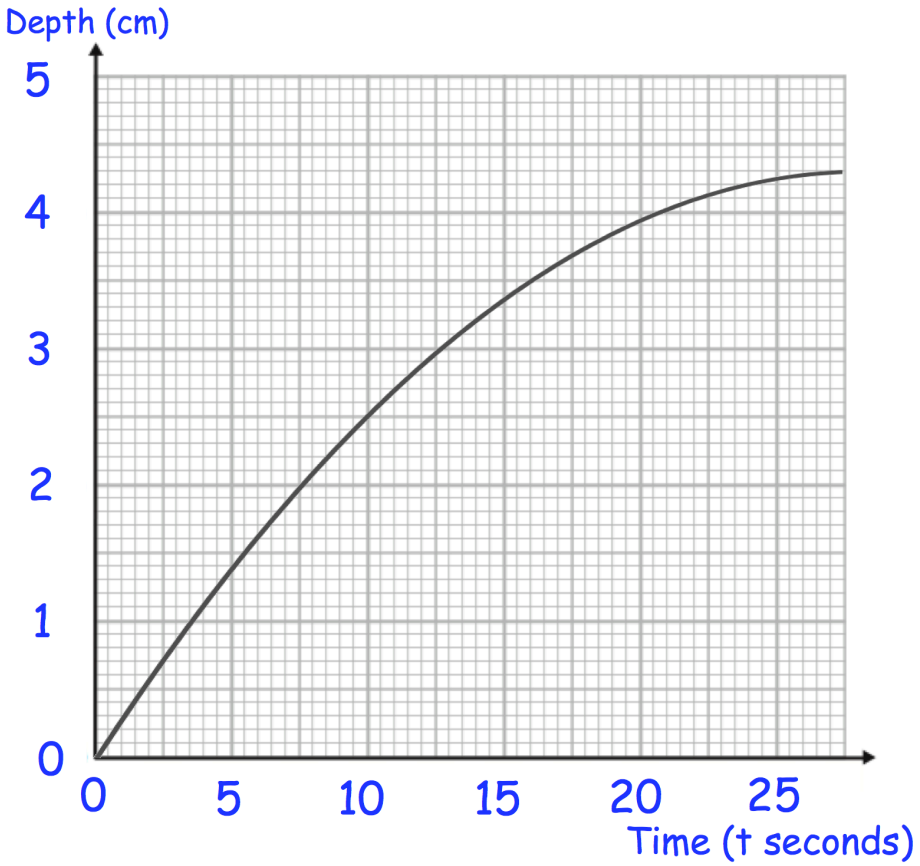
$$\frac{12}{\sqrt{3}}$$

.....

(2)

25. Jack is filling a container with water.

The graph shows the depth of the water, in centimetres, t seconds after the start of filling the container.



(a) Calculate an estimate for the gradient of the graph when t = 15 seconds.

.....

(3)

(b) Describe fully what your answer to (a) represents

.....

.....

(2)

(c) Explain why your answer to (a) is only an estimate

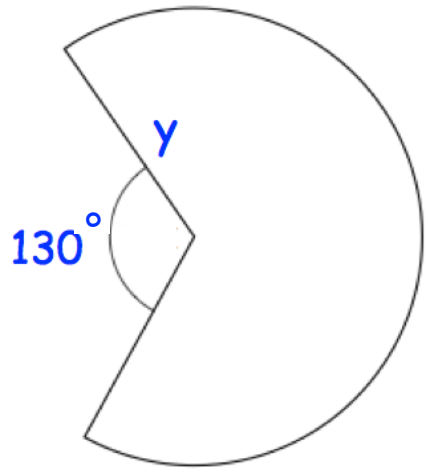
.....

(1)

26. Prove $(2n + 9)^2 - (2n + 5)^2$ is always a multiple of 4

(4)

27.



The perimeter of the sector is 1m.
Find the length of y, the radius of the circle.

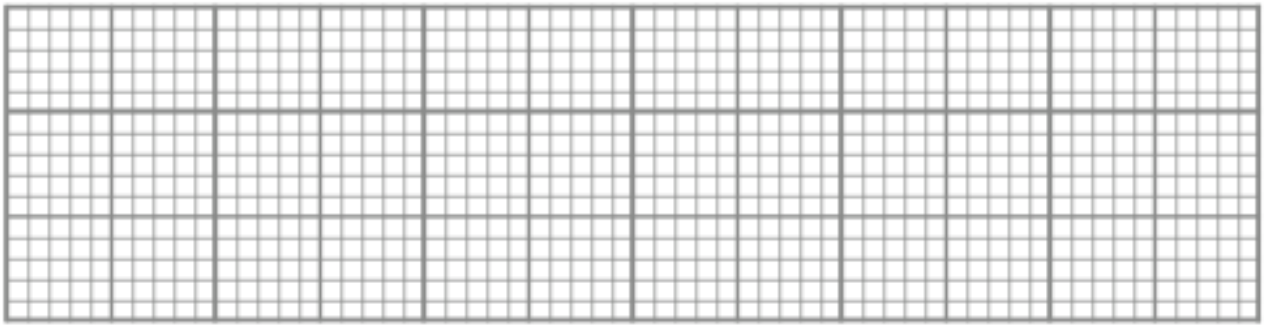
.....cm

(4)

28. The table gives information about the weights of 50 male rugby players.

Lowest	68kg
Lower Quartile	74kg
Median	82kg
Upper Quartile	88kg
Highest	100kg

(a) Draw a box plot to show this information.

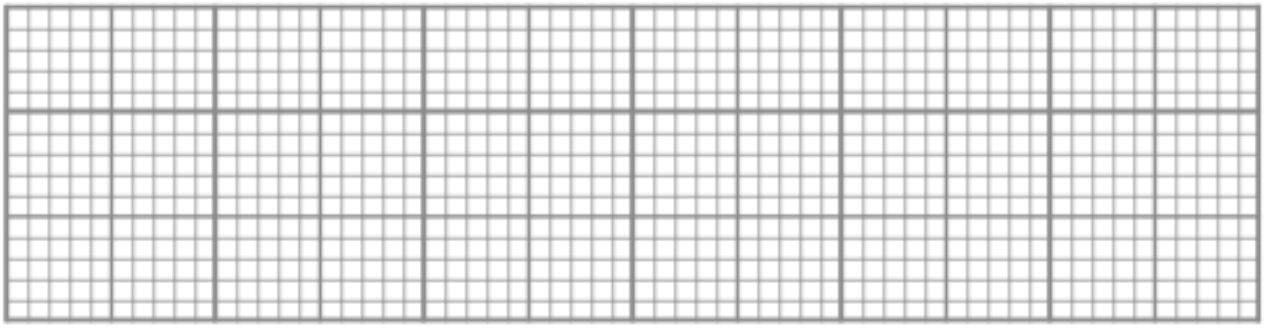


(3)

The weights of 50 female rugby players are also recorded.

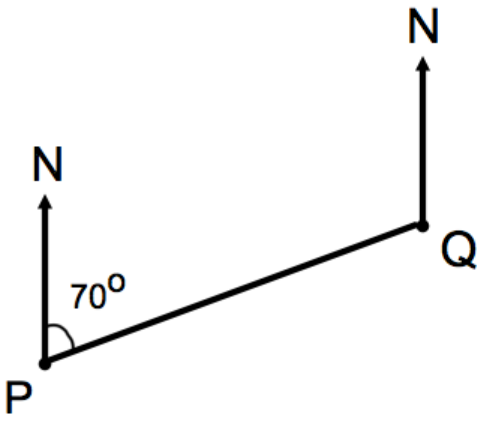
The lightest female rugby player is 51kg.
The lower quartile is 60kg.
The median is 71kg.
The range and interquartile range for the female rugby players is the same as the male rugby players.

(b) Draw a box plot to show this information.



(3)

29. The diagram shows the position of two airplanes, P and Q.



Not drawn accurately

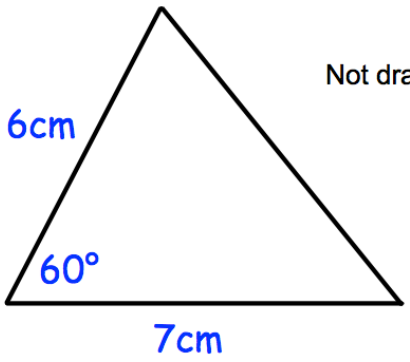
The bearing of Q from P is 070°

Calculate the bearing of P from Q.

.....°

(2)

30.



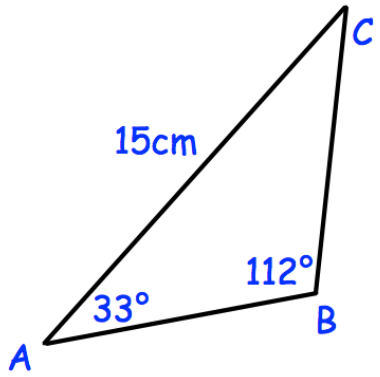
Not drawn is scale.

Calculate the area of the triangle.

.....cm²

(2)

31.



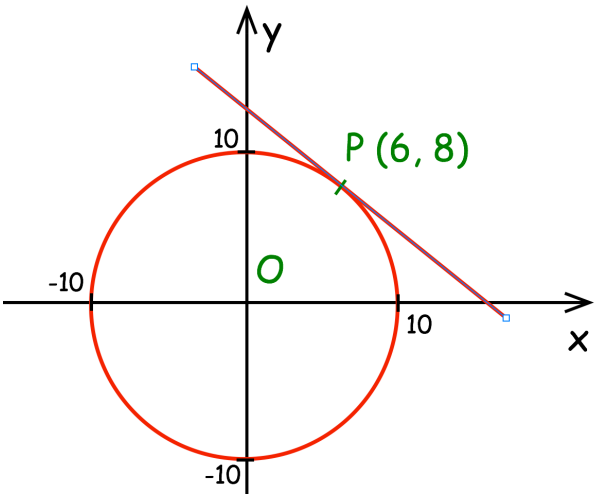
In triangle ABC the length of AC is 15cm.
Angle ABC = 112°
Angle BAC = 33°

Work out the length of BC.

.....cm

(3)

32. Here is a circle, centre O, and the tangent to the circle at the point (6, 8).



Find the equation of the tangent at the point P.

.....

(4)