WEST COVENTRY ACADEMY SIXTH FORM

West Coventry

Academy

Mathematics Department – the department that counts!

GCSE to A-LEVEL TRANSITION BOOKLET
Summer 2024

STUDENT NAME: …………………….

This booklet contains the important information regarding A-Level Maths to ensure that you get off to the best possible start in this subject area at A level, should you decide to enrol. This booklet also includes a range of questions from key topics that you will have seen in GCSE and will be helpful for AS Level and A-Level.

Each topic has three sections:
• Introduce questions allow you to practise the key concepts.
• Strengthen questions build on your knowledge of the key concepts.
• Deepen questions will challenge your understanding.

Use the Sparx topic codes for each topic for Independent Learning. The key facts and formulae are provided in the booklet for support. Remember to show your working out for each question.

Please hand in the completed workbook section in the first lesson if you decide to enrol to do Maths at A level. Good luck!

A-Level Mathematics

The key staff:

Mrs Khubbar
Mrs Rooney

Course Details

Course Title: *A level Mathematics*

Exam board: Edexcel

Exam Code: For AS Mathematics 8MA0 & For A Level Mathematics 9MA0

Exam Board web site: qualifications.pearson.com

Assessment method:

The Mathematics AS level is assessed by two final exams in year 12.

The Mathematics A level is assessed by three final exams in year 13.

Minimum requirement:

Standard entry requirements of five A*-C grades (or equivalent 9-1 grades) including English language, along with Mathematics ideally at Grade 7 or above, but Grade 6 is considered on an individual basis.

About the course

This course will hopefully extend your mathematical thinking and enjoyment of the subject. The course builds strongly upon GCSE Maths, particularly the aspects of algebra, so you must be confident in these skills. You must also be prepared to think! You will have to solve problems by drawing on a number of mathematical topics and be prepared to persevere with some lengthy solutions.

AS Level Mathematics

Pure Mathematics – One 2-hour Exam paper.
Topics included are: Algebra and functions, Coordinate geometry, Trigonometry, Vectors, Exponentials and logarithms, Differentiation and Integration.

Mechanics and Statistics- One 1¼ hour Exam paper.
Topics included in the statistics module are: Statistical sampling, Data presentation and interpretation, Probability, Statistical distributions, Statistical hypothesis testing.
Topics included in the mechanics module are: Quantities and units in mechanics, Kinematics and Forces and Newton's laws.

A Level Mathematics

Pure Maths – Two 2-hour Exam papers.

Topics included are: Algebra and functions, Coordinate geometry, Trigonometry, 2D Vectors, Exponentials and logarithms, Differentiation and Integration. Proof, Algebraic & partial fractions, Functions and modelling, Series & sequences, Binomial theorem, Trigonometry, Parametric equations, Differentiation, Numerical methods, Integration and 3D Vectors.

Mechanics and Statistics - One 2-hour Exam paper.

Topics included in the statistics module are: Statistical sampling, Data presentation and interpretation, Probability, Statistical distributions, Statistical hypothesis testing, Regression and correlation, Normal distribution

Topics included in the mechanics module are: Quantities and units in mechanics, Kinematics, Forces & Newton's laws, Moments and Forces at any angle.

Academic and Career Pathways

Apart from further study of Mathematics itself, many university courses depend on the subject. For example, Science, Computing and Engineering based courses use a great deal of mathematics. Subjects such as Geography, Psychology, Economics and Business make use of Statistics. Mathematics is also a requirement for Finance and Accountancy training. It is reported that people with A Level Mathematics are earning an average of 10% more than others.

What equipment will be needed for the subject?

An A4 ring binder, with dividers
Lined paper
Pens, pencils, ruler
A scientific calculator, capable of dealing with data analysis of a large data set. We recommend the Casio Classwiz fx-991EX.

PLEASE CONSULT WITH THE MATHS DEPARTMENT BEFORE BUYING ANY OTHER MODEL.

Text Books

Students will have access to the digital textbooks for both AS and AL. For those students who wish to have paperback textbooks also, then students are required to pay a refundable deposit of £10 for each of the two textbooks needed for AS Maths and £10 deposit for each of the two AL books. The deposits will be returned to the students on return of the textbooks in a reusable condition.

In this booklet, there are a range of questions from key topics that you will have seen in GCSE and will be helpful for AS Level and A-Level.

Each topic has three sections:
- **Introduce** questions allow you to practise the key concepts.
- **Strengthen** questions build on your knowledge of the key concepts.
- **Deepen** questions will challenge your understanding.

Unless otherwise indicated, you may use a calculator.

Use the grid below to keep track of your progress in each topic. Tick the sections you have attempted. If you use Sparx Maths you can find even more questions by searching for the Sparx topic codes in Independent Learning.

	I	S	D	Sparx topic codes	Teacher comment
Surds	○	○	○	U499 U707 U281	_____
Expanding brackets	○	○	○	U768 U606	_____
Factorising quadratics	○	○	○	U178 U858	_____
Simplifying expressions	○	○	○	U662 U437	_____
Operations with algebraic fractions	○	○	○	U685 U457 U824	_____
Solving quadratic equations	○	○	○	U228 U960 U665 U150	_____
Quadratic graphs	○	○	○	U589 U769 U601	_____
Linear simultaneous equations	○	○	○	U760 U757	_____
Straight-line graphs	○	○	○	U315 U477 U848 U669 U377 U898	_____
Right-angled trigonometry	○	○	○	U283 U545 U170	_____
Further trigonometry	○	○	○	U952 U591	_____

Sparx Maths

Key facts and formulae:

The Quadratic formula:
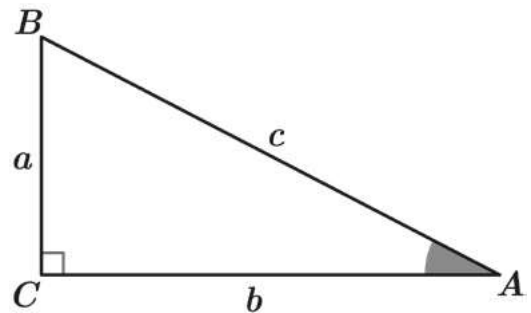
The solution of $ax^2 + bx + c = 0$

where $a \neq 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Trigonometry:

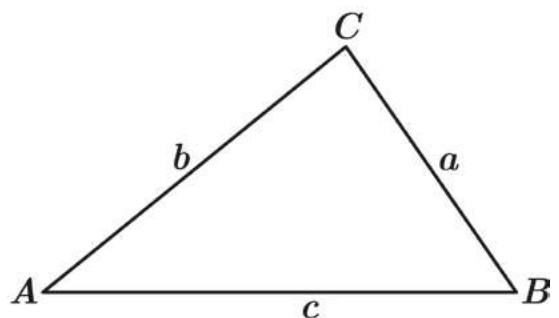In any right-angled triangle ABC where a, b and c are the length of the sides and c is the hypotenuse:

$\sin A = \dfrac{a}{c}$ $\qquad$ $\cos A = \dfrac{b}{c}$ $\qquad$ $\tan A = \dfrac{a}{b}$

In any triangle ABC where a, b and c are the length of the sides:

sine rule: $\quad \dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

cosine rule: $\quad a^2 = b^2 + c^2 - 2bc \cos A$

Q1   Expand and fully simplify $\sqrt{5}(\sqrt{5} + \sqrt{7})$

Answer: _____

Q2   Rationalise the denominator of $\dfrac{2\sqrt{5}}{\sqrt{6}}$

Give your answer in its simplest form.

Answer: _____

Q3   Expand and fully simplify $(6 + \sqrt{5})(1 + \sqrt{5})$

Answer: _____

Sparx Maths

Q4 Write $\left(5 + \sqrt{12}\right)\left(11 + \sqrt{3}\right)$ in the form $a + b\sqrt{3}$, where a and b are integers.

Answer: _____

Q5 Rationalise the denominator of $\dfrac{1 + \sqrt{2}}{\sqrt{2}}$

Give your answer as a fraction in its simplest form.

Answer: _____

Q1   Expand and fully simplify $\left(2\sqrt{6} - 5\sqrt{2}\right)^2$

Answer: _____

Q2   Rationalise the denominator of $\dfrac{15 + \sqrt{3}}{10\sqrt{3}}$

Give your answer as a fraction in its simplest form.

Answer: _____

Q3 Rationalise the denominator of $\dfrac{2\sqrt{7}}{3+\sqrt{7}}$

Give your answer in its simplest form.

Answer: _____

Q4 Write $\sqrt{12} + \dfrac{33}{\sqrt{3}}$ in the form $r\sqrt{3}$, where r is an integer.

Answer: _____

Q1

Expand and fully simplify $\left(4 + \sqrt{7}\right)^2 - \left(4 - \sqrt{7}\right)^2$

Answer: _____

Q2

Work out the value of x in the equation below.

$$x\left(\sqrt{11} - 2\right) = 21$$

Give your answer in the form $a + b\sqrt{11}$, where a and b are integers.

Answer: _____

Sparx Maths

Q3 Given that h is a prime number, rationalise the denominator of $\dfrac{5h - \sqrt{h}}{\sqrt{h}}$

Give your answer in its simplest form.

Answer: _____

Q4 Calculate the unknown side length, in metres, of the rectangle below.

Give your answer in its simplest form, rationalising the denominator if necessary.

$(\sqrt{3}+1)\,\text{m}$

? $\qquad$ area $= (7 - 2\sqrt{3})\,\text{m}^2$
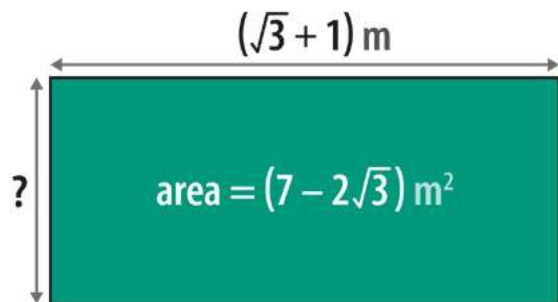
Answer: _____ m

Q1 Expand and fully simplify $(m + 9)(m + 2)$

Answer: _____

Q2 Expand and fully simplify $(2a + 3)(4a + 5)$

Answer: _____

Sparx Maths

Q3   Expand and fully simplify $(x - 3)(4x + 9)$

Answer: --

Q4   Expand and fully simplify $(6n - 5)^2$

Answer: --

Q1   Expand and fully simplify $2(4d + 5)(3d + 1)$

Answer: _____

Q2   Expand and fully simplify $(x + 1)(x^2 + 3x + 5)$

Answer: _____

Sparx Maths

Q3 Expand and fully simplify $(3n + 4)(5n + 2) + 5(n + 7)$

Answer: _____

Q4 Expand and fully simplify $(t - 2)(t + 5)(t - 4)$

Answer: _____

Q1

Expand and fully simplify $(2x + 5)(4x - 3)(5x - 4)$

Answer: _____

Q2

Work out the values of a, b and c in the identity below.

$(3x - 1)(x + 2)(ax + b) \equiv 15x^3 + 16x^2 - 25x + c$

Answer: $a =$ _____ $b =$ _____ $c =$ _____

Sparx Maths

Q3　Write the following expression in the form $\dfrac{1}{ax^b} + \dfrac{1}{cy^d}$ where a, b, c, and d are integers.

$$\left(\frac{1}{5x} + \frac{1}{4y}\right)\left(\frac{1}{25x^2} - \frac{1}{20xy} + \frac{1}{16y^2}\right)$$

Answer: _____

Q4　Show that $(x^2 + 1)(y^2 + 4) \equiv (xy - 2)^2 + (2x + y)^2$

Q1

Fully factorise $y^2 + 9y + 20$

Answer: _____

Q2

Fully factorise $x^2 - x - 20$

Answer: _____

Q3

Fully factorise $w^2 - 15w + 54$

Answer: _____

Sparx Maths

Q1 Fully factorise x^2 - 16

Answer: _____

Q2 Fully factorise $2r^2 + 15r + 7$

Answer: _____

Q3 Fully factorise $5x^2 + 22x + 8$

Answer: _____

Q1 Fully factorise $49h^2 - m^2$

Answer: _____

Q2 Fully factorise $7b - b^2 - 10$

Answer: _____

Q3 Fully factorise $4k^2 - 25n^2 - (2k - 5n)^2$

Answer: _____

Q1 Fully simplify the expression $4y^5 \times 3y^2$

Answer: _____

Q2 Simplify $(h^{-5})^3$

Give your answer without any negative indices.

Answer: _____

Q3 Write $\dfrac{2t^6 u}{8t^3}$ as a fraction in its simplest form.

Answer: _____

Q4 Fully simplify $\left(\dfrac{t^3}{u^5}\right)^2$

Answer: _____

Q5 Write $\dfrac{33xy + 9x}{18x}$ as a fraction in its simplest form.

Answer: _____

Q6 Fully simplify $\dfrac{6a + 42}{a^2 + 11a + 28}$

Answer: _____

Sparx Maths

Q1 Write $\dfrac{(3a)^2}{54ak}$ as a fraction in its simplest form.

Answer: _____

Q2 Fully simplify $\left(64g^8h^4\right)^{\frac{1}{2}}$

Answer: _____

Q3 Fully simplify $\dfrac{x+2}{2x^2-31x-70}$

Answer: _____

Q1 Work out the values of a, b and c in the equality below.

$$\frac{2x^{20}y^4 \times 12x^4y^{26}}{(2xy^2)^3} = ax^by^c$$

Answer: $a =$ .... $b =$ .... $c =$ ....

Q2 Work out what expression should replace the ? in the equivalent fractions below.

$$\frac{?}{12r^4(t+6)} = \frac{2n}{3r}$$

Answer: ? = ...

Q3 $\dfrac{ax^2 + bx + c}{dx^2 - 25}$ simplifies to give $\dfrac{x-4}{2x-5}$

Work out the values of a, b, c and d in the original fraction.

Answer: $a =$ .... $b =$ .... $c =$ .... $d =$ ....

Sparx Maths

Q1

Fully simplify $\dfrac{14a}{b} \times \dfrac{b}{2}$

Answer: _____

Q2

Fully simplify $\dfrac{6a}{v} \div \dfrac{2a}{5}$

Give your answer as a fraction.

Answer: _____

Q3

Fully simplify the expression below to give a single fraction.

$\dfrac{n+2}{5} + \dfrac{6n}{7}$

Answer: _____

Q1

Fully simplify $\dfrac{2}{5a+4} \times \dfrac{45a+36}{a}$

Give your answer as a fraction.

Answer: _____

Q2

Fully simplify $\dfrac{6x}{(5x-7)(x+1)} - \dfrac{1}{5x-7}$

Give your answer fully factorised.

Answer: _____

Q3 Write the following as a single fraction in its simplest form:

$$\frac{2x^2 - 11x + 12}{x + 5} \div (4x^2 - 6x)$$

Give your answer fully factorised.

Answer: _____

Q4 Fully simplify $\dfrac{4ab^2}{k}$ x $\dfrac{3ak}{12k}$ x $\dfrac{7}{5ab}$

Give your answer as a fraction.

Answer: _____

Q1 Fully simplify $\dfrac{7}{36 - x^2} - \dfrac{3}{6 + x}$

Give your answer fully factorised.

Answer: _____

Q2 Write the following as a single fraction in its simplest form:

$6 - (x + 4) \div \dfrac{x^2 + 11x + 28}{x - 7}$

Give your answer fully factorised.

Answer: _____

Q1   Find the two solutions to the equation

$(x - 9)(x + 5) = 0$

Answer: --

Q2   Solve this equation by factorising:

$y^2 + 3y - 10 = 0$

Answer: --

Q3   Solve this equation by factorising:

$12 - 8w + w^2 = 0$

Answer: --

Q4 Using the quadratic formula, solve

$4x^2 + 16x + 15 = 0$

Answer: _____

Q5 Solve this equation by factorising:

$2m^2 - 11m + 5 = 0$

Answer: _____

Sparx Maths

Q1   Using the quadratic formula, solve $y^2 - 6y + 7 = 0$

Give your answer in the form $a \pm \sqrt{b}$

Answer: _____

Q2   Solve the equation below using factorising.

$6y^2 - 11y - 10 = 0$

Answer: _____

Q3   Using the quadratic formula, solve $6x^2 - 35 = -11x$

Answer: _____

Q4   Solve $3r(3r - 4) = 2$

Give your answers to 2 d.p.

Answer: _____

Q1 Solve $x(x + 4) - 4(5x + 9) = 0$

Answer: _____

Q2 Jessica thinks of a positive number, n, which is less than 1
She adds this number to its reciprocal and gets 2.9

Work out the value of n.
Give your answer as a fraction in its simplest form.

Answer: _____

Q3

Solve $\dfrac{4}{y-1} - \dfrac{5}{y+2} = \dfrac{3}{y}$

Answer: _____

Q4

$$x = \frac{-3 \pm \sqrt{29}}{2}$$

There is only one equation of the form $x^2 + bx + c = 0$ that gives these values of x as solutions.

Work out the values of b and c.

Answer: $b =$ _____ $c =$ _____

Sparx Maths

Q1

Write down the coordinates of the roots of the quadratic curve shown below.
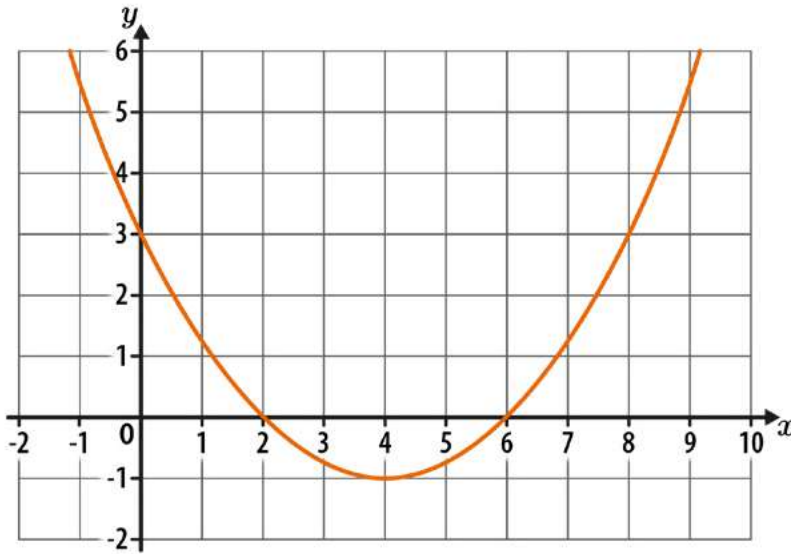
Answer: (_____ , _____) and (_____ , _____)

Q2

Here is the graph of the function $y = x^2 + x - 5$

Estimate the solutions to $x^2 + x - 5 = 0$
Give your answers to 1 d.p.
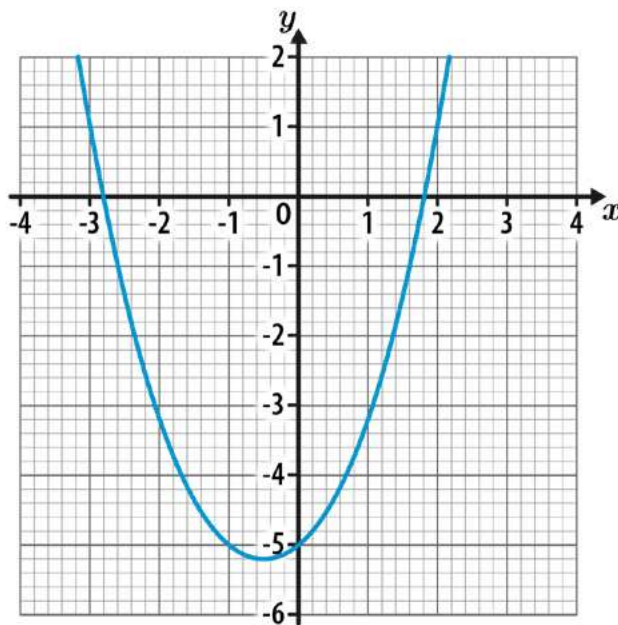
Answer: _____

Q3 The diagram below shows the graph of the function $y = 2x^2 + 2x - 7$

Work out the solutions to $2x^2 + 2x - 7 = -3$
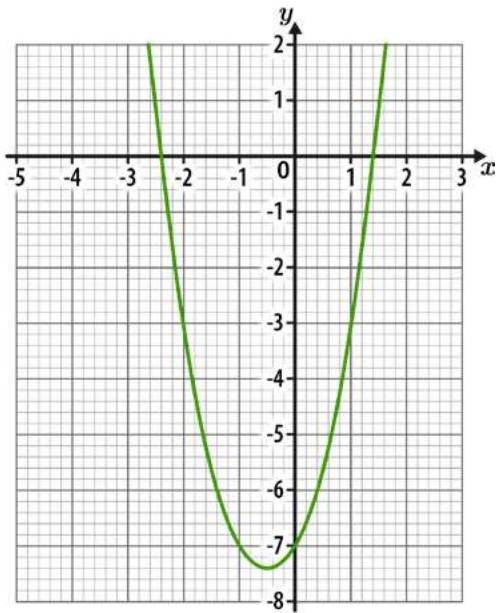
Answer: _____

Q4 a) Write $x^2 + 6x + 11$ in the form $(x + c)^2 + d$, where c and d are numbers.

Answer: a) _____

b) Hence, write down the coordinates of the turning point on the curve
$y = x^2 + 6x + 11$

Answer: b) (_____ , _____)

Q1 The diagram below shows a sketch of the curve $y = x^2 + 8x - 10$

P is the turning point of the curve.

Work out the coordinates of P.
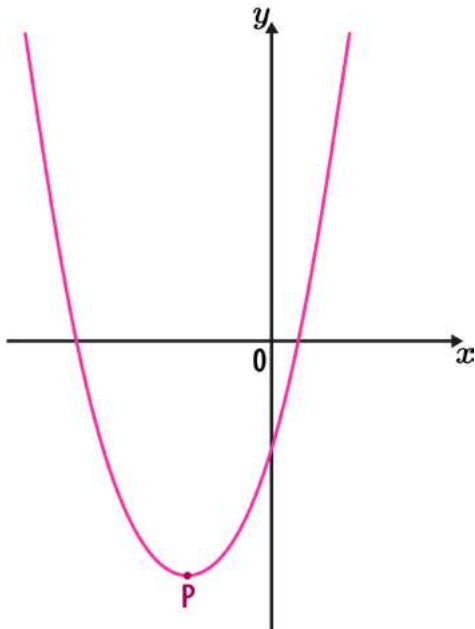
Answer: (_____ , _____)

Q2 Work out the coordinates of the turning point of the curve $y = x^2 - 5x + 1$

Answer: (_____ , _____)

Q3

The diagram below shows a sketch of the curve $y = 3x^2 - 6x - 10$

P is the turning point of the curve.

Work out the coordinates of P.
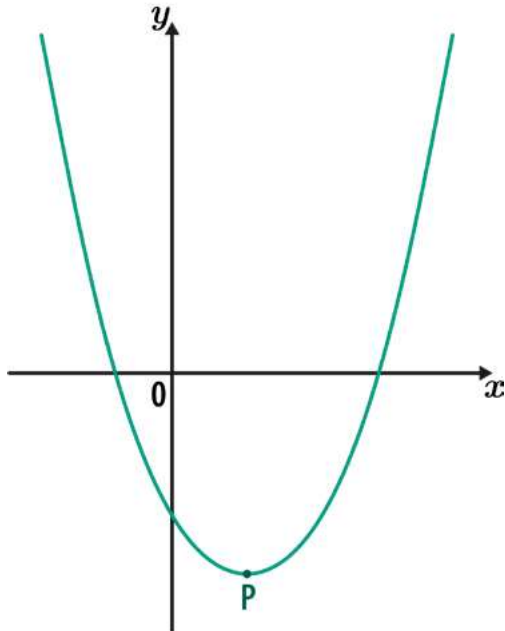
Answer: (_____ , _____)

Q4

The diagram below shows the graph of $y = 2x^2 - 5x - 3$

Use the diagram to estimate the solutions to $2x^2 - 5x - 3 = -2x + 2$
Give any decimal answers to 1 d.p.
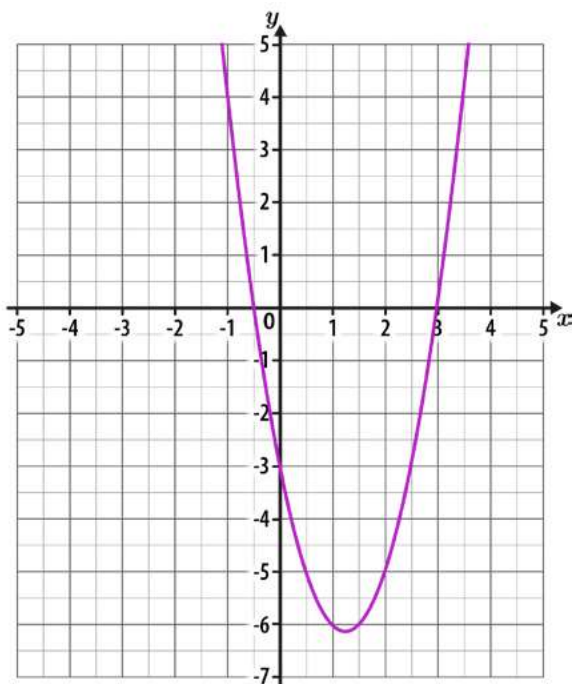
Answer: _____

Q1   The diagram below shows the graph of $y = 2x^2 + 4x - 1$
The equation $2x^2 + 4x - 1 = k$ has solutions at $x = -3$ and $x = 1$

What is the value of k?
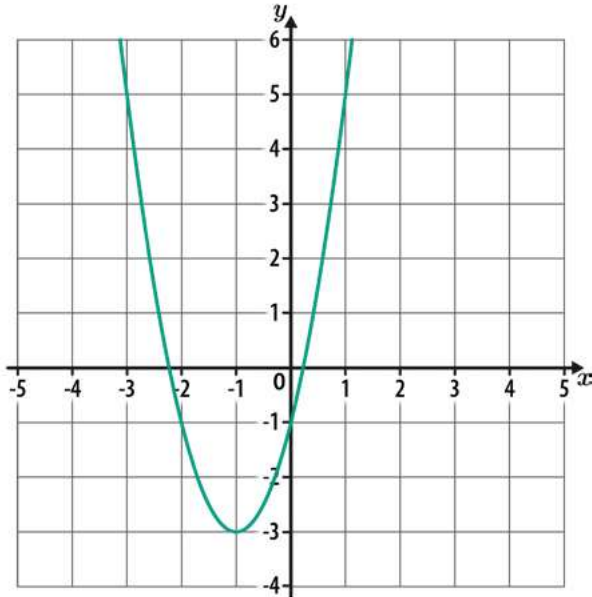
Answer: $k =$ _____ .

Q2   A curve has the equation $y = x^2 + ax + b$, where a and b are numbers.
The turning point of the curve is (5, 4)

Work out the values of a and b.

Answer: $a =$ _____ $b =$ _____

Q3   A curve has the equation $y = -x^2 + 16x - 65$

a)   Work out the turning point of the curve.

Answer: a) (_____ , _____)

b)   By considering the position of the turning point and the shape of the curve, work out how many real roots $y = -x^2 + 16x - 65$ has.

Answer: b) _____

Sparx Maths

Q1

Solve the following simultaneous equations:

$6x + y = 22$

$2x + y = 10$

Answer: $x =$ _____ $y =$ _____

Q2

Solve the following simultaneous equations:

$7x - 4y = 20$

$2x + 4y = 16$

Answer: $x =$ _____ $y =$ _____

Q3

Solve the following simultaneous equations:

$$15a - 4b = 25$$

$$5a + 2b = 25$$

Answer: $a = $ _____ $b = $ _____

Q4

Solve the following simultaneous equations:

$$2x + 3y = 8$$

$$3x + 4y = 11$$

Answer: $x = $ _____ $y = $ _____

Q1

Solve the following simultaneous equations:

$7x + 5y = 8$

$3x - 2y = -9$

Answer: $x =$ _____ $y =$ _____

Q2

Solve the following simultaneous equations:

$6x + 7y = 5$

$9x + 13y = -10$

Answer: $x =$ _____ $y =$ _____

Q3

Solve the following simultaneous equations:

$$7y + 2x = \frac{23}{2}$$

$$5y + 3x = 9$$

Answer: $x =$ .... $y =$ ....

Q4

Solve the following simultaneous equations:

$$4.6t + 8.1u = 104$$

$$3.8t - 2.7u = -8$$

Answer: $t =$ .... $u =$ ....

Q1

Solve the following simultaneous equations:

$3x = 3 - 4y$

$12y + 11 = -5x$

Answer: $x =$ .... $y =$ ....

Q2

Find the values of x, y and a by solving the following simultaneous equations:

$6x - 7y = -10$

$12x - 5y = 16$

$2x + ay = 10$

Answer: $x =$ .... $y =$ .... $a =$ ....

Q3 Solve the following simultaneous equations:

$$\frac{4}{7x - 4} = \frac{1}{6y}$$

$$\frac{5x}{3y + 2} = 4$$

Answer: $x =$ .... $y =$ ....

Q4 Solve the following simultaneous equations:

$$2^x = 4^{(7 - 2y)}$$

$$3^{(5x - 13y)} = 81$$

Answer: $x =$ .... $y =$ ....

Sparx Maths

Q1 Work out the equation of the straight line shown below.
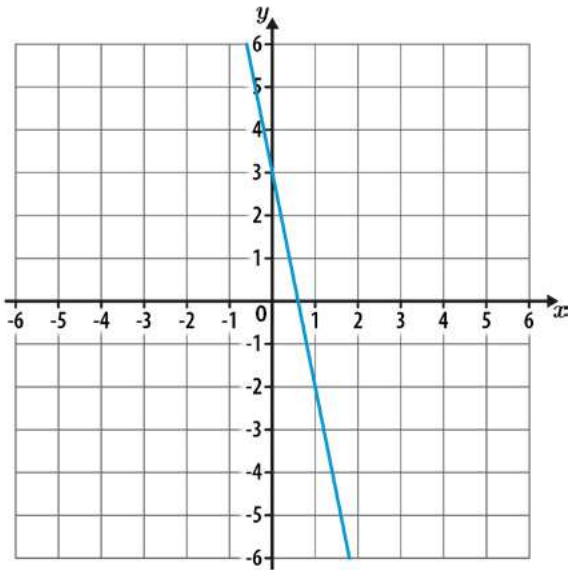
Answer: _____

Q2 Work out the equation of the straight line that is parallel to line A and passes through point P.
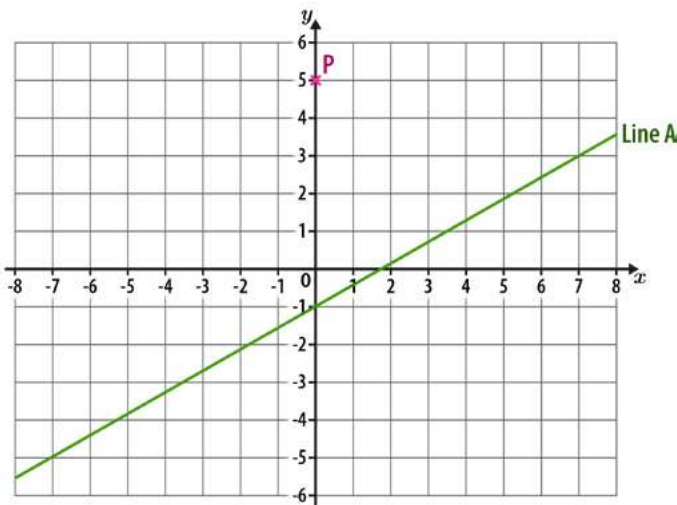
Answer: _____

Q3 Line A has the equation $2y - 10 = 16x$
Line B is perpendicular to Line A.

What is the gradient of Line B?

Answer: _____

Q4 A straight line has a gradient of 3 and passes through the point (2, 10)

Work out the equation of the line.

Answer: _____

Q5 Work out the equation of the straight line that passes through (2, 3) and (5, 18)

Answer: _____

Sparx Maths

Q1

A straight line has a gradient of $-\dfrac{3}{4}$, and passes through the point (32, 12)

Work out the equation of the line.

Answer: _____

Q2

The diagram below shows point P and Line A.
Line B is **perpendicular** to line A and passes through point P.

What is the equation of line B?
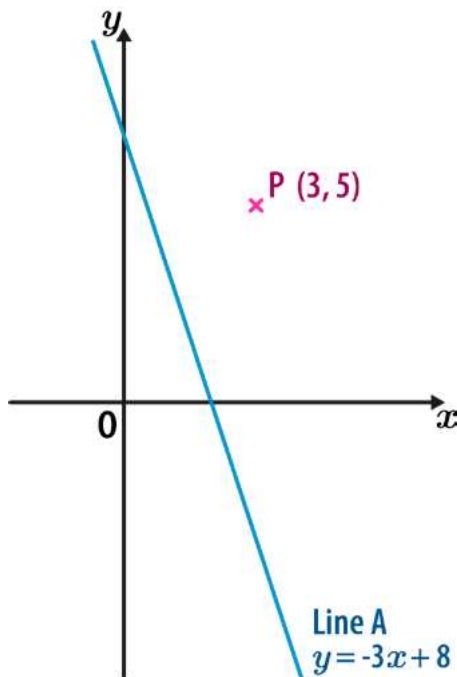
Answer: _____

Q3   Work out the equation of the straight line that passes through (1, -7) and (6, 8)

Answer: --

Q4   The graph below shows line P and line Q.
Line Q is **parallel** to line P.

What is the equation of line Q?

Answer: --

Sparx Maths
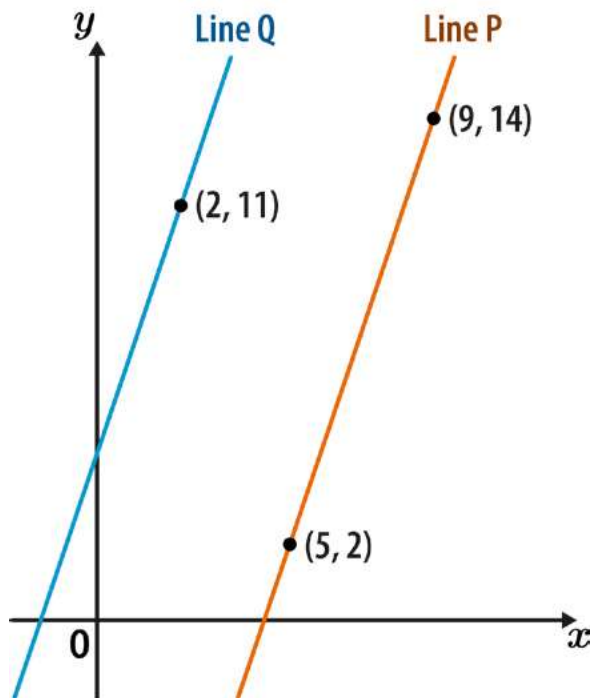
Q1   Write an expression, in terms of h, for the gradient of a line **perpendicular** to the line segment joining ($3h$, 20) to ($6h$, 8)

Give your answer as a fully simplified fraction.

Answer: _____

Q2   The triangle ABC has an area of 24 square units.

What are the coordinates of point B?

Answer: (_____ , _____)

Q3
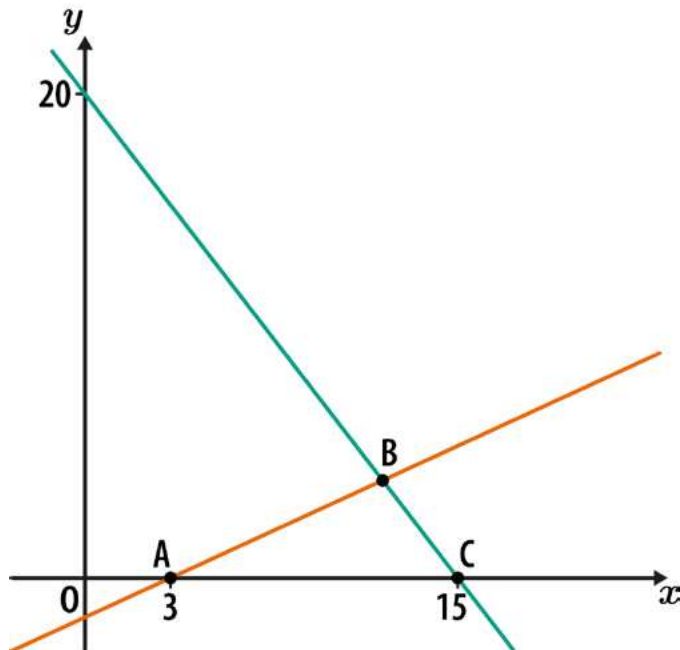
Line A has the equation $y + 2x = 14$
The gradient of line B is twice the gradient of line A.

Work out the ratio of the length of OQ to the length of OR.
Give your answer in its simplest form.

Line B

R

Line A
$y + 2x = 14$
Q

P

O

$x = 3$
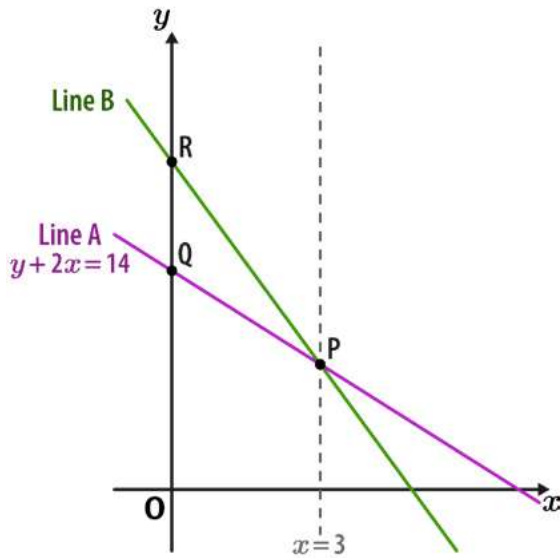
Answer: _____

Q4

A circle, centre O, passes through the point (6, -12), as shown.

Work out the equation of the tangent to the circle at this point.
Give your answer in the form $y = mx + c$, where m and c are integers or fractions in their simplest form.

O

(6, -12)
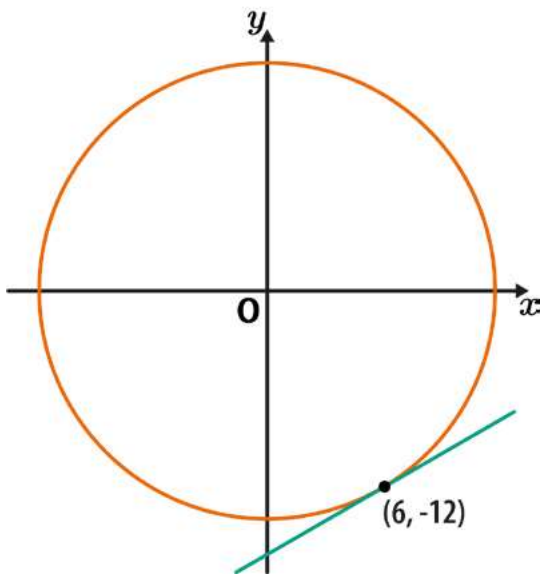
Answer: _____

Q1

Work out the length g.
Give your answer to 1 d.p.

6.2 mm

47°

g
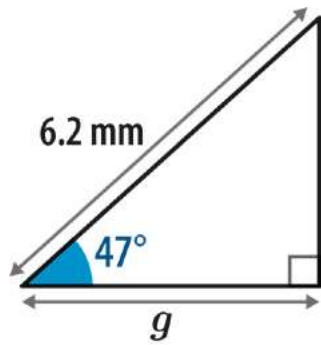
Not drawn accurately

Answer: _____ mm

Q2

Work out the length k.
Give your answer to 1 d.p.

k

36°

7.7 cm
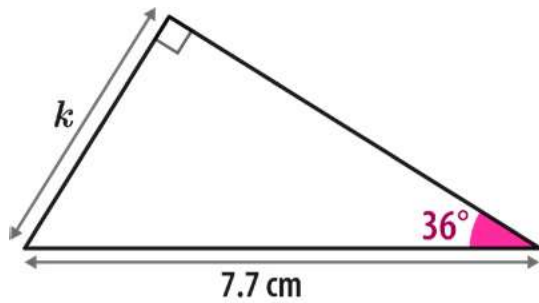
Not drawn accurately

Answer: _____ cm

Q3

Calculate the size of angle y.
Give your answer to the nearest integer.

y

11.4 cm

13.2 cm
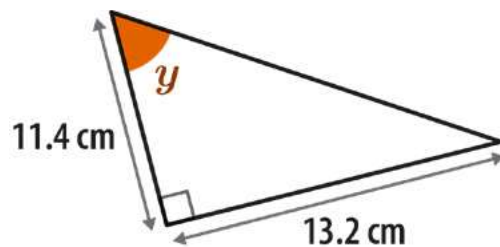
Not drawn accurately

Answer: _____ °

Q1 Calculate the length y.
Give your answer to 2 d.p.

14.6 m

53°

y
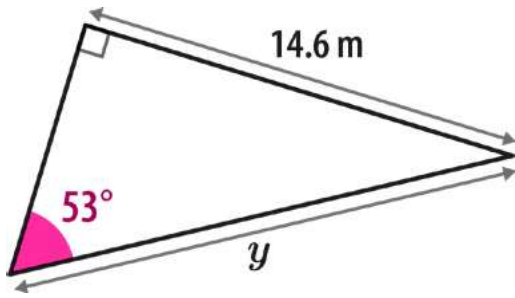
Not drawn accurately

Answer: _____ m

Q2 Calculate the size of angle BAC.
Give your answer to 1 d.p.

A 29.1 m B

24.6 m

C
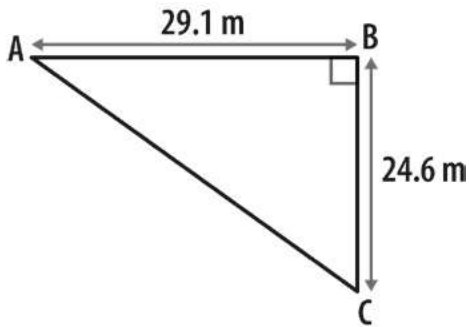
Not drawn accurately

Answer: _____ °

Q3 What is the size of angle x?
Give your answer to 1 d.p.

13.94 mm

x

12.3 mm

6.56 mm

Not drawn accurately

Answer: _____ °

Sparx Maths
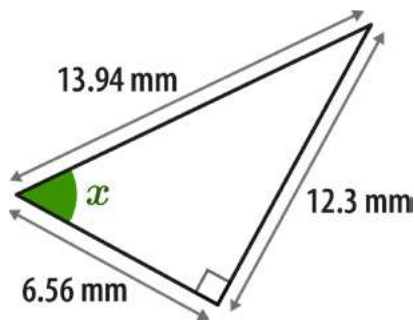
Q1

Calculate the size of angle θ.
Give your answer to 1 d.p.

5.9 cm

θ

4.6 cm

Not drawn accurately

Answer: _____ °

Q2

Work out the length y.
Give your answer to 2 d.p.

13.2 cm

65°

50°

y
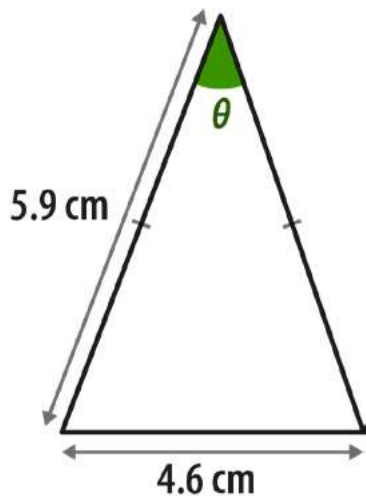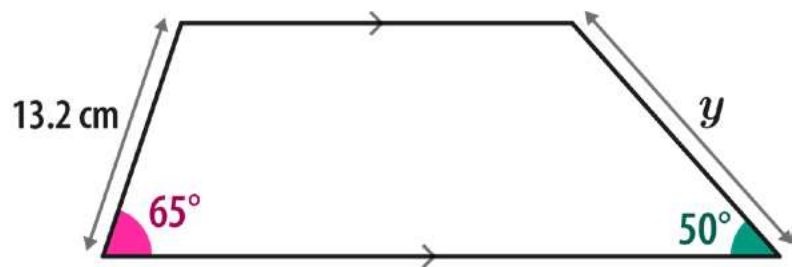
Not drawn accurately

Answer: _____ cm

Q3   The graph below shows the line with equation $y = 5x + 2$
The axes both have the same scale.

Calculate the size of angle θ.
Give your answer in degrees to the nearest integer.
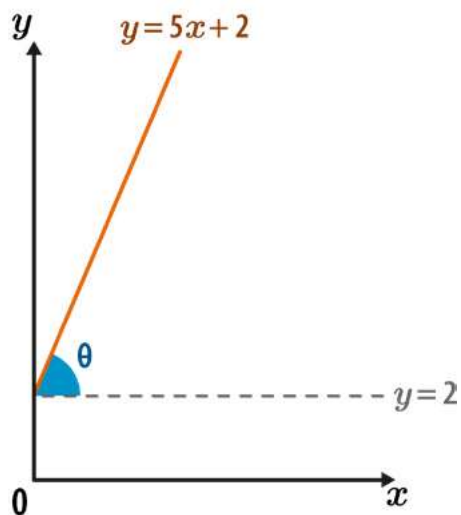
Not drawn accurately

Answer: _____ °

Q4   The shape below is a regular hexagon.

Use trigonometry to calculate the distance p.
Give your answer in centimetres to 2 d.p.
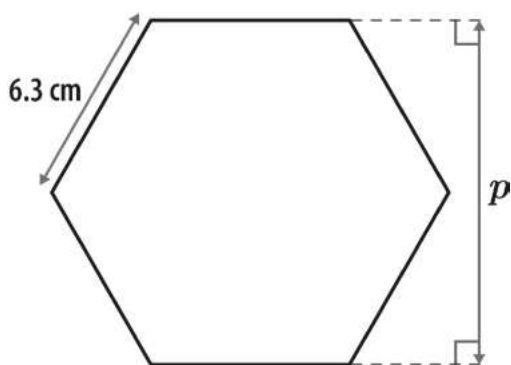
Not drawn accurately

Answer: _____ cm

Q1

Using the sine rule, calculate the length x.
Give your answer to 1 d.p.

40°

x

57°

9 cm
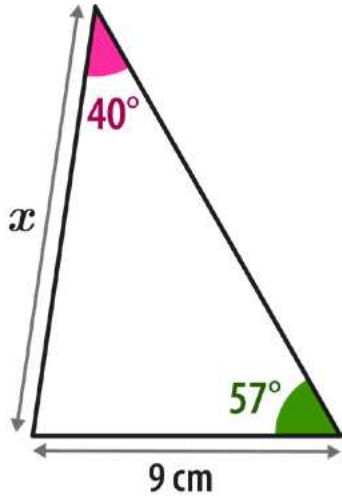
Not drawn accurately

Answer: _____ cm

Q2

Using the cosine rule, work out the length y.
Give your answer to 1 d.p.

65°   6 m

11 m

y
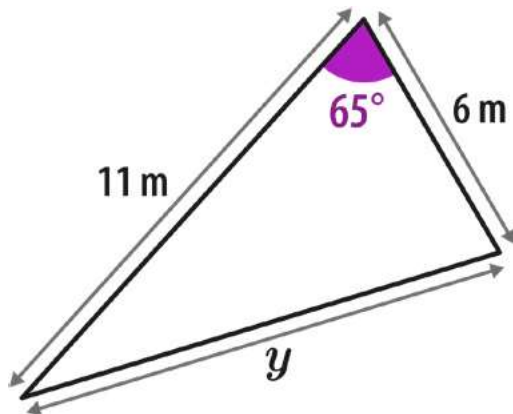
Not drawn accurately

Answer: _____ m

Q3   Use the sine rule to calculate angle θ.
Give your answer to 1 d.p.

72°

7 cm

θ

10 cm
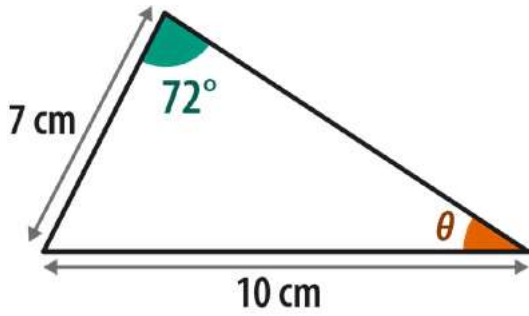
Not drawn accurately

Answer: _____. °

Q4   Use the cosine rule to calculate the size of angle x.
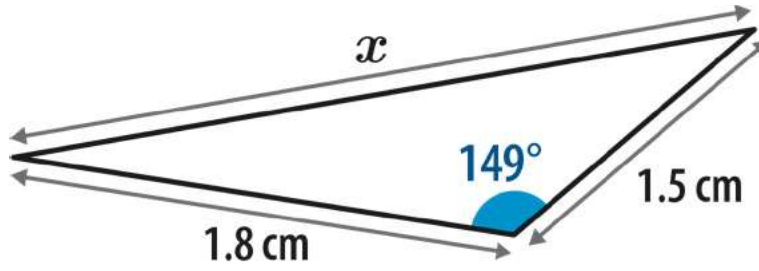Give your answer to the nearest degree.

17 cm

19 cm

x

13 cm

Not drawn accurately

Answer: _____. °

Sparx Maths
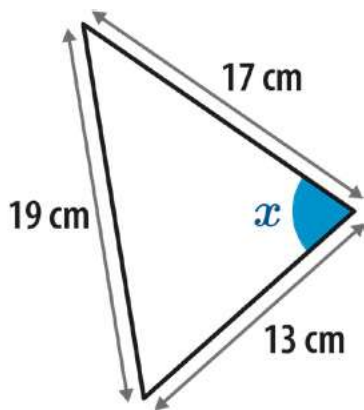
Q1   Work out length x.
Give your answer to 1 d.p.

x

149°

1.5 cm

1.8 cm

Not drawn accurately

Answer: _____ cm

Q2   All the angles in the triangle below are acute.
Calculate the angle θ to 1 d.p.

θ

9 cm

6 cm

35°

Not drawn accurately

Answer: _____ °

Q1
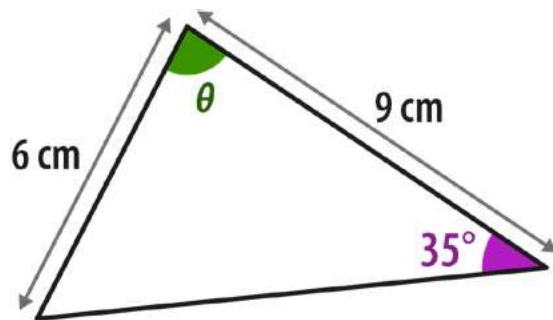
Calculate the length d.
Give your answer to 2 s.f.
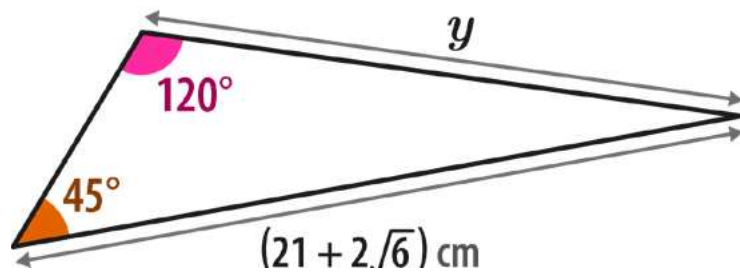

32°

d

29°

2.7 cm
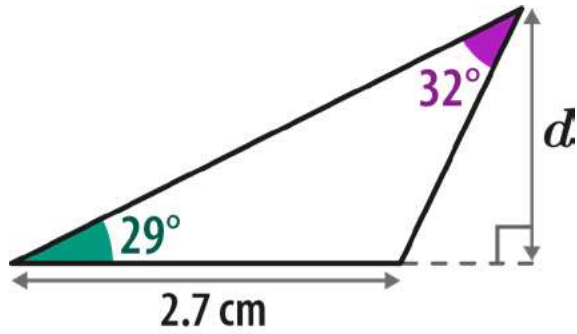
Not drawn accurately

Answer: _____ cm

Q2

Work out the length y in the triangle below.
Give your answer in its simplest form, rationalising the denominator if necessary.

y

120°

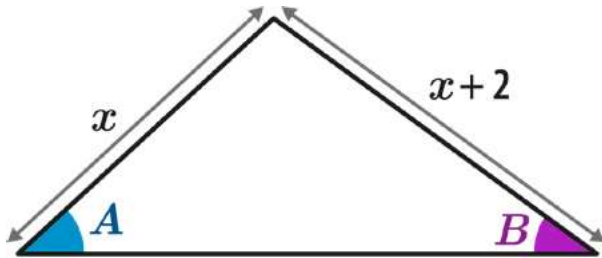45°

$(21 + 2\sqrt{6})$ cm

Not drawn accurately

Answer: _____ cm

Sparx Maths

Q3

Using the information below, work out the value of x.

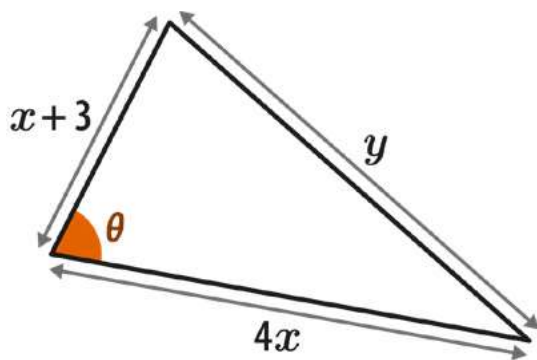$\sin A = \dfrac{4}{5}$ $\qquad$ $\sin B = \dfrac{3}{4}$

Not drawn accurately

Answer: _____

Q4

Given that $\cos\theta = \dfrac{1}{8}$ in the triangle below, show that $y^2 = ax^2 + bx + c$ where a, b and c are numbers.

What are the values of a, b and c?

Not drawn accurately

Answer: $a =$ _____ $b =$ _____ $c =$ _____