Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

MATHEMATICS **0580/22**

Paper 2 (Extended) **May/June 2017**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
Tracing paper (optional)
Geometrical instruments

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
If working is needed for any question it must be shown below that question.
Electronic calculators should be used.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 70.

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CAMBRIDGE International Examinations

1 Write 0.071 64 correct to 2 significant figures.

View solution

..... [1]

2 The probability that Stephanie wins her next tennis match is 0.85 .

View solution

Find the probability that Stephanie does not win her next tennis match.

..... [1]

3 Change 6200 cm^2 into m^2.

View solution

..... m^2 [1]

4 Calculate $\sqrt{120} + 3.8^2 - 25$.

View solution

..... [1]

5 Work out 85 cents as a percentage of \$2.03 .

View solution

..... % [1]

6 Factorise.

$14x - 21y$

View solution

..... [1]

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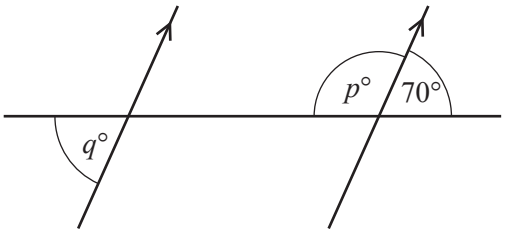
7 Find the value of $5a-3b$ when $a=7$ and $b=-2$.

View solution

..... [2]

8

View solution



NOT TO SCALE

The diagram shows a straight line intersecting two parallel lines.

Find the value of p and the value of q.

$p =$ .....

$q =$ ..... [2]

9 **Without using a calculator**, work out $\frac{5}{6}-\frac{1}{2}$.

View solution

Show all the steps of your working and give your answer as a fraction in its simplest form.

..... [2]

10 Solve.

$$2-x=5x+1$$

View solution

$x =$ ..... [2]

11 **(a)** Write 0.0605 in standard form.

View solution

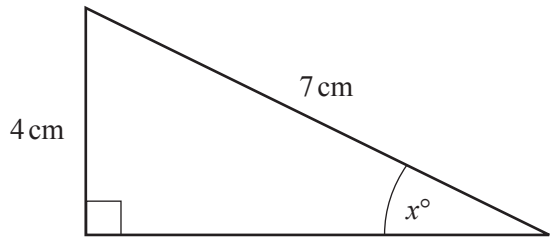
..... [1]

(b) Calculate $0.1\times5.1\times10^{4}$, giving your answer in standard form.

View solution

..... [1]

12



NOT TO SCALE

View solution

Calculate the value of x.

$x =$ ..... [2]

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13 Solve the inequality.

$$3n - 11 > 5n - 18$$

View solution

..... [2]

14 Work out.

(a) $125^{\frac{2}{3}}$

View solution

..... [1]

(b) $\left(\frac{1}{3}\right)^{-2}$

View solution

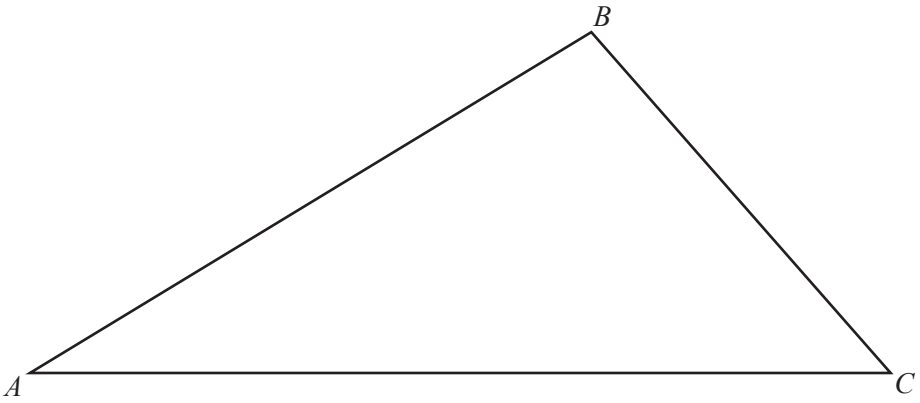
..... [1]

15 Make q the subject of the formula $p = 2q^2$.

View solution

$q =$ ..... [2]

16



View solution

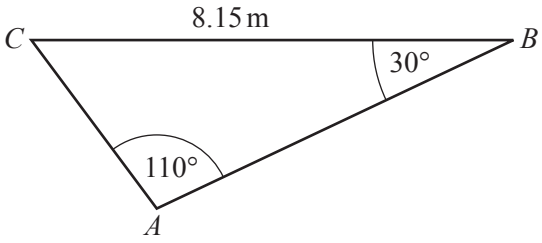
(a) **Using a straight edge and compasses only**, construct the bisector of angle *BAC*. [2]

View solution

(b) Shade the region inside the triangle that is nearer to *AC* than to *AB*. [1]

17

View solution



NOT TO SCALE

Calculate *AC*.

AC = ... m [3]

18 A rectangle has length 62 mm and width 47 mm, both correct to the nearest millimetre.
The area of this rectangle is A mm^2.

View solution

Complete the statement about the value of A.

..... $\leqslant A <$ ..... [3]

19 In a triangle PQR, $PQ = 8$ cm and $QR = 7$ cm.
The area of this triangle is 17 cm^2.

View solution

Calculate the two possible values of angle PQR.

Angle PQR = ... or ..... [3]

20 Write as a single fraction in its simplest form.

View solution

$$\frac{2x-1}{3} - \frac{2}{x+1}$$

..... [3]

21 y is inversely proportional to $\sqrt{1+x}$.
When $x = 8$, $y = 2$.

View solution

Find y when $x = 15$.

$y =$ ..... [3]

22 Factorise completely.

(a) $9t^2 - u^2$

View solution

..... [2]

(b) $2c - 4d - pc + 2pd$

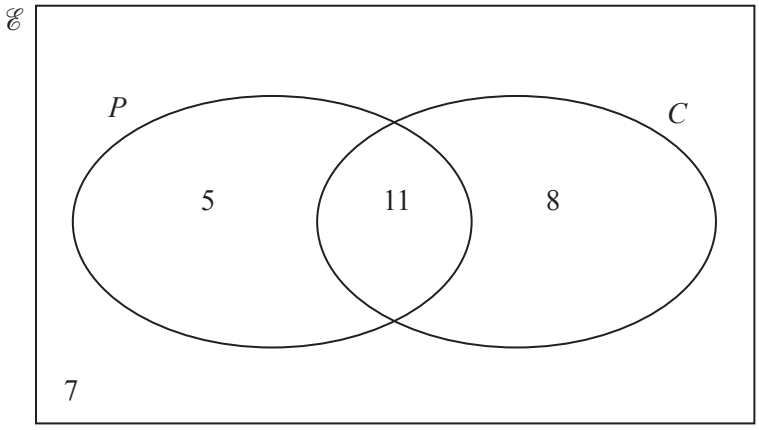
View solution

..... [2]

23 **(a)** $\mathscr{E}$ = {students in a class}
P = {students who study physics}
C = {students who study chemistry}

View solution

The Venn diagram shows numbers of students.



(i) Find the number of students who study physics or chemistry.

..... [1]

(ii) Find $n(P \cap C')$.

View solution

..... [1]

(iii) A student who does not study chemistry is chosen at random.

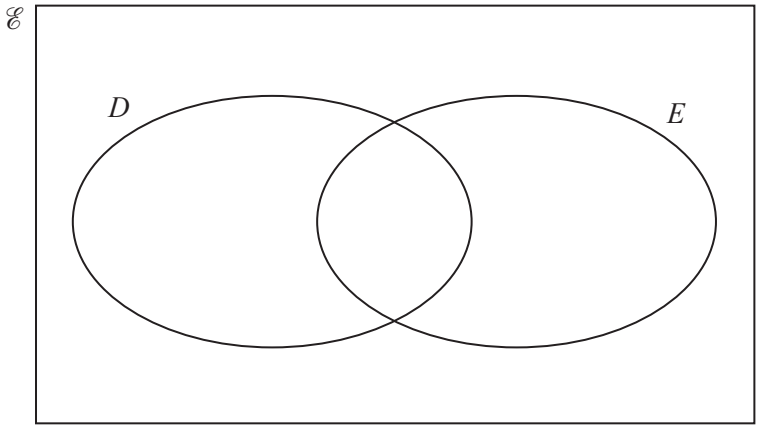
Find the probability that this student does not study physics.

View solution

..... [1]

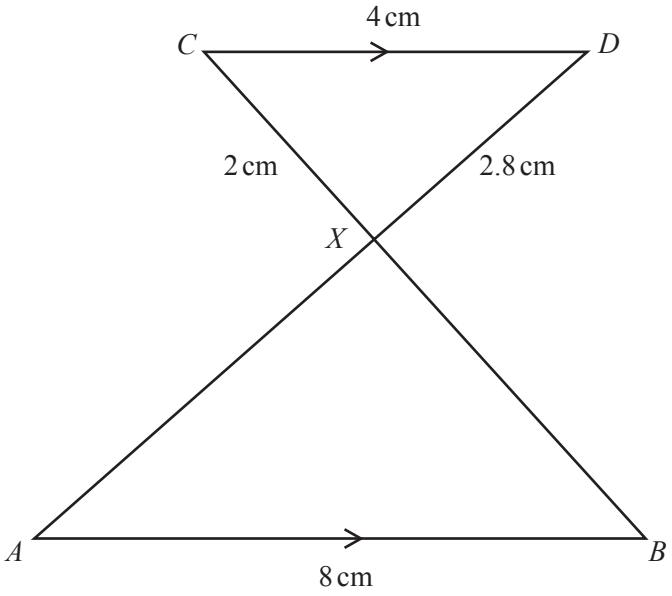
(b) On the Venn diagram below, shade the region $D \cup E'$.

View solution



[1]

24



NOT TO SCALE

In the diagram, AB and CD are parallel.
AD and BC intersect at X.
$AB = 8$ cm, $CD = 4$ cm, $CX = 2$ cm and $DX = 2.8$ cm.

(a) Complete this mathematical statement.

View solution

Triangle ABX is ..... to triangle DCX. [1]

(b) Calculate AX.

View solution

$AX =$ ..... cm [2]

(c) The area of triangle ABX is y cm^2.

View solution

Find the area of triangle DCX in terms of y.

..... cm^2 [1]

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25 **(a)** Simplify. $(16x^{16})^{\frac{3}{4}}$

View solution

..... [2]

(b) $2p^{\frac{3}{2}} = 54$

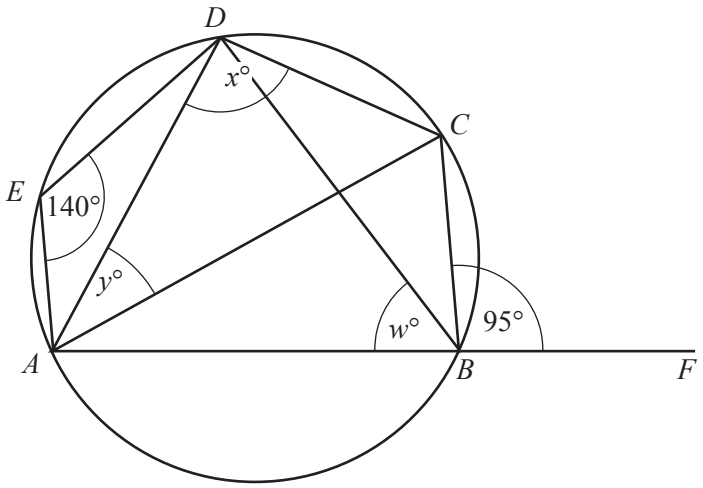
View solution

Find the value of p.

$p =$ ..... [2]

26

View solution



NOT TO SCALE

A, B, C, D and E lie on the circle.
AB is extended to F.
Angle $AED = 140°$ and angle $CBF = 95°$.

Find the values of w, x and y.

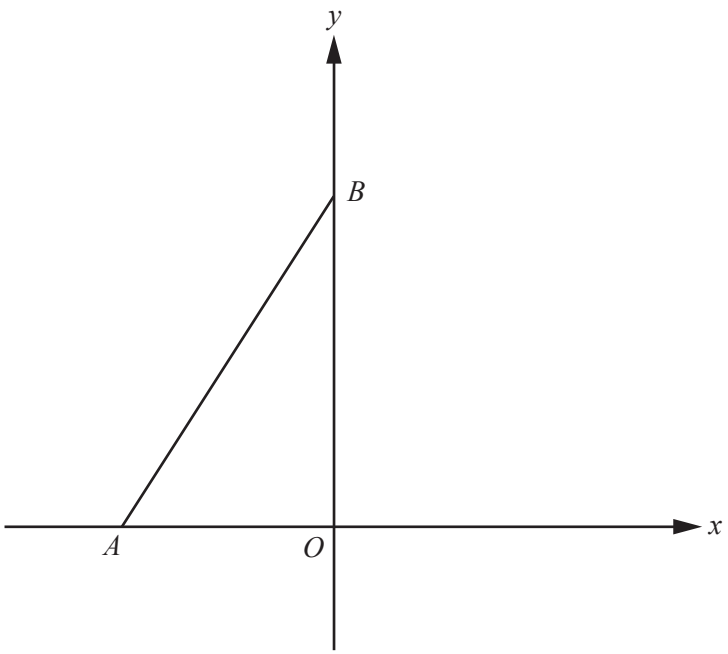
$w =$ .....

$x =$ .....

$y =$ ..... [5]

Question 27 is printed on the next page.

27



NOT TO SCALE

A is the point $(-2, 0)$ and B is the point $(0, 4)$.

(a) Find the equation of the straight line joining A and B.

View solution

..... [3]

(b) Find the equation of the perpendicular bisector of AB.

View solution

..... [4]

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