BennettMaths will be live on TikTok the night before paper 1, going through all the predicted papers.
Wednesday 13th May at 8pm

Candidate surname	Other names

Pearson Edexcel

Best Guess Paper – 1H Non-Calculator

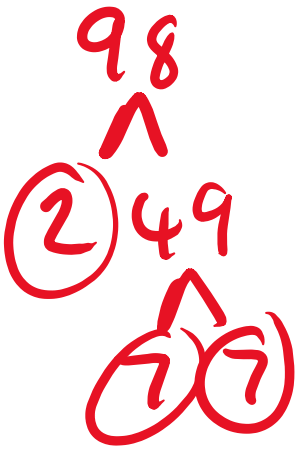
Within this booklet you will find my best guess at which topics might be on the first Edexcel Higher gcse maths paper.

There may be other topics that appear on paper 1, so please ensure that you continue to revise all topics.

The paper consists of 21 questions totalling 80 marks.

1

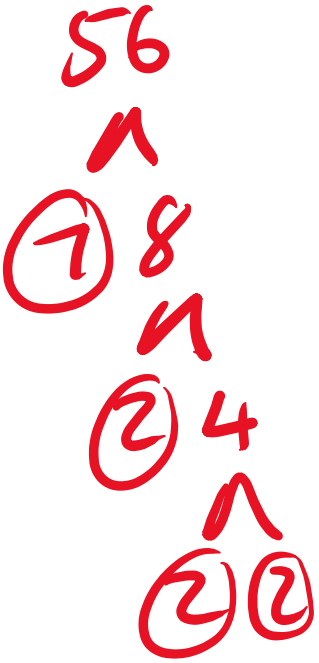
(a) Express 98 as a product of primes



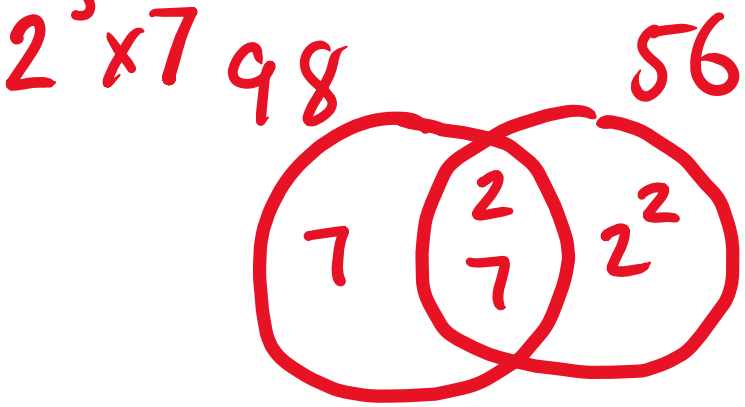
2×7^2

(2)

(b) Hence, or otherwise, find the highest common factor (HCF) of 98 and 56



$2^3 \times 7$



$2 \times 7 = 14$

14

(2)

(Total for Question 1 is 4 marks)

2 Work out the value of

$$\frac{2^8 \times 2^{-4}}{2^{-2}}$$

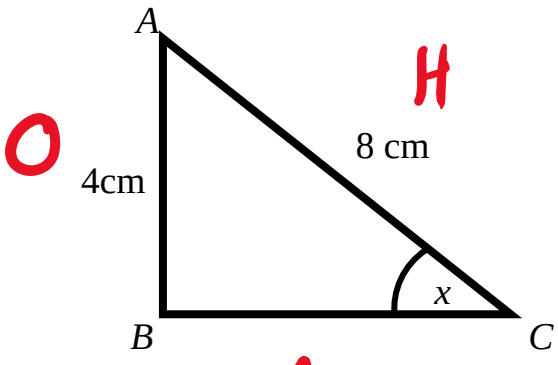
$= \frac{2^4}{2^{-2}} = 2^6 = 64$

(Total for Question 2 is 3 marks)

3

Triangle ABC is shown below.

AB = 4cm
AC = 8cm



$\sin(30) = \frac{1}{2}$

H

O

A

Work out the size of angle x

$\sin(x) = \frac{4}{8} = \frac{1}{2}$

$x = \sin^{-1}\left(\frac{1}{2}\right) = 30$

30

(Total for Question 3 is 3 marks)

4 ABCD is a rectangle.

$3\frac{3}{4}\ cm$ $= 3\frac{6}{8} = \frac{15}{4}$

$\frac{11}{8}$ $1\frac{3}{8}\ cm$

(a) Work out the perimeter of ABCD

$3\frac{6}{8} + 1\frac{3}{8} = 5\frac{1}{8}$

$5\frac{1}{8} \times 2 = 10\frac{2}{8}\ cm$

(3)

(b) Work out the area of ABCD

$\frac{15}{4} \times \frac{11}{8} = \frac{165}{32} = 5\frac{5}{32}$

(2)

(Total for Question 4 is 5 marks)

5 Margot takes part in a 5 km fun run.
During the first 3 km she runs at an average speed of 6 km/h.
She is aiming to complete the race in under 54 minutes.
Work out the average speed that she needs to maintain to finish in under 54 minutes.

$\frac{3}{6} = 0.5$ hours $= 30$ minutes

$54 - 30 = 24$

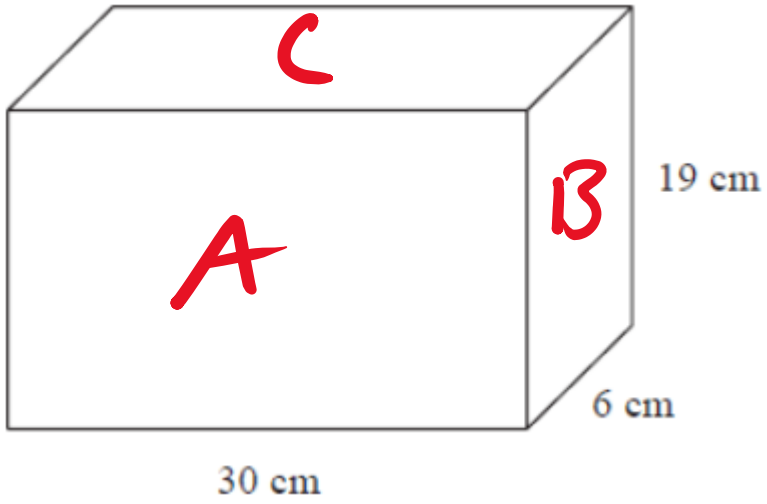
$5\text{km} - 3\text{km} = 2\text{km}$

2km : 24 mins
1km : 12 mins
5km : 60 mins

5km/h

(Total for Question 5 is 4 marks)

6 The diagram shows a cuboid.



Work out the surface area of the cuboid.

A = 30x19x2 = 1140

B = 6x19x2 = 228

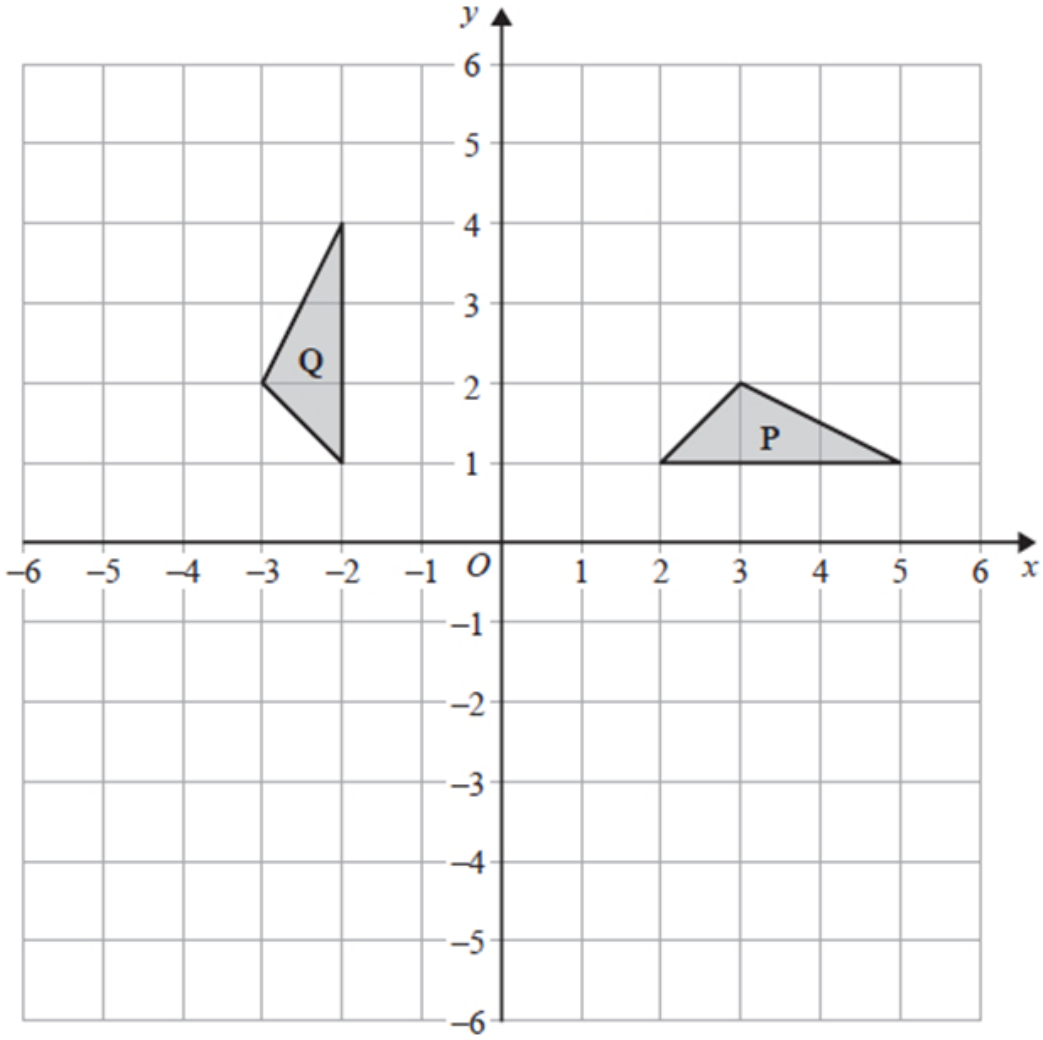
C = 30x6x2 = 360

1728

1728 cm^2

(Total for Question 6 is 3 marks)

7



Describe the single transformation that maps triangle P onto triangle Q

Rotation
90° Anti-clockwise
Centre (0,-1)

(Total for Question 7 is 2 marks)

8 Work out the value of

$$\left(\frac{16}{81}\right)^{-\frac{3}{4}}$$

$= \left(\frac{81}{16}\right)^{\frac{3}{4}}$

$\sqrt[4]{\frac{81}{16}} = \frac{3}{2}$

$\left(\frac{3}{2}\right)^3 = \frac{27}{8}$

(Total for Question 8 is 3 marks)

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9 The residents of Barton village live in either a house, cottage or bungalow.
The ratio of the number of houses to the number of cottages is 9:2
The ratio of the number of cottages to the number of bungalows is 5:4.

There are 900 houses in the village.
Work out how many bungalows there are.

H : C : B

9 : 2

5 : 4 ×2

45 : 10 : 8 ×20

900

160

(Total for Question 9 is 3 marks)

10 The total number of Green Party members in 2026 is 210,000. This represents an increase of 200%, since 2025.

Work out the total number of members in 2025.

300% = 210,000

100% = 70,000

70,000

(Total for Question 10 is 3 marks)

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11 Express $8 : \sqrt{16 \times 10^4}$ in the form $1 : n$

$8 : \sqrt{16} \times \sqrt{10^4}$

$8 : 4 \times 10^2$

$8 : 400$

$1 : 50$

(Total for Question 11 is 2 marks)

12 The group frequency table gives information on the time taken, in minutes, for 80 students to complete their weekly maths homework.

Time (t minutes)	Frequency
$0 < t \leqslant 20$	5
$20 < t \leqslant 40$	30
$40 < t \leqslant 60$	20
$60 < t \leqslant 80$	15
$80 < t \leqslant 100$	8
$100 < t \leqslant 120$	2

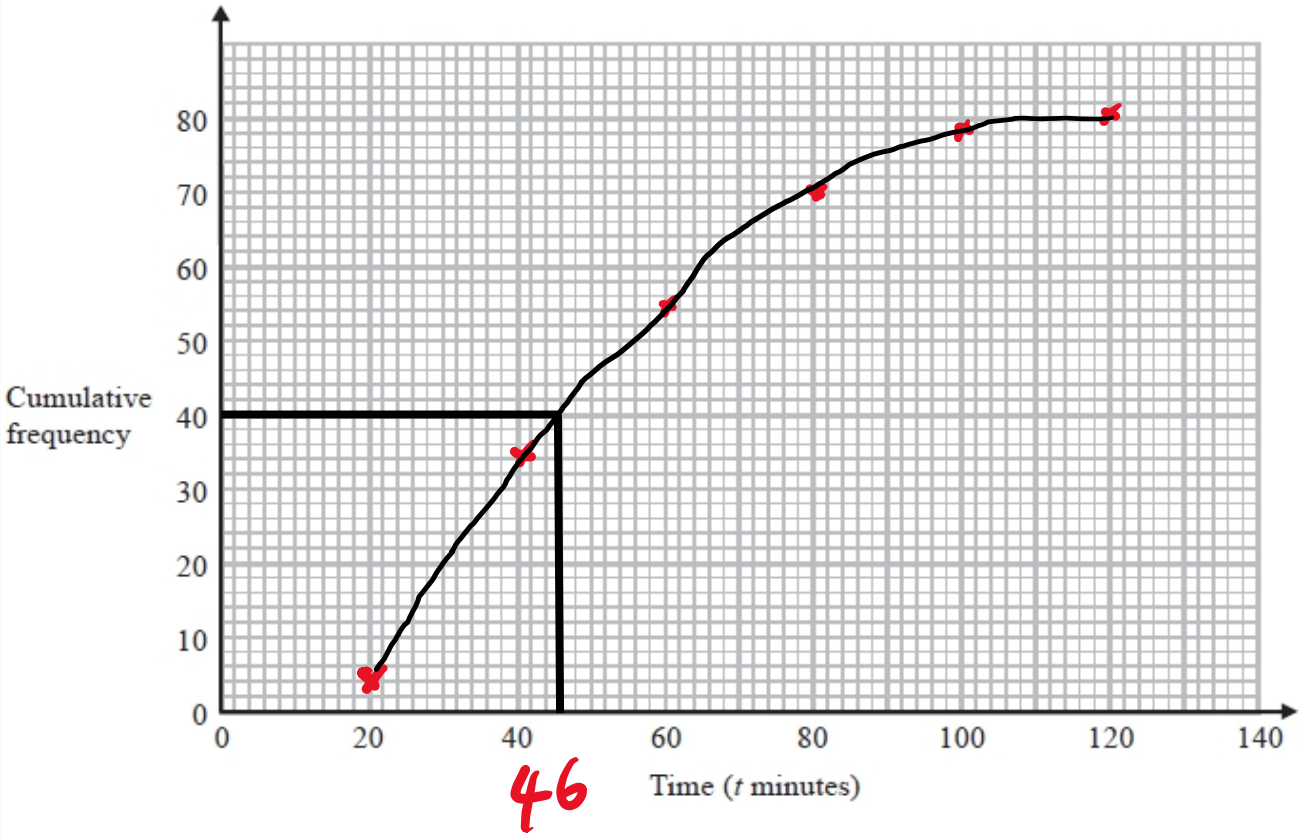
(a) Complete the cumulative frequency table

Time (t minutes)	Cumulative frequency
$0 < t \leqslant 20$	5
$0 < t \leqslant 40$	35
$0 < t \leqslant 60$	55
$0 < t \leqslant 80$	70
$0 < t \leqslant 100$	78
$0 < t \leqslant 120$	80

(1)

(b) On the grid, draw the cumulative frequency graph for this information

(2)



(c) Using your graph, work out an estimate for the median time taken.

46

(1)

(Total for Question 12 is 4 marks)

13 Work out

$$0.4\dot{5} \times 0.\dot{7}$$

Give your answer as a fraction.
You must show your working

$x = 0.4\dot{5}$

$10x = 4.\dot{5}$

$100x = 45.\dot{5}$

$90x = 41$

$x = \frac{41}{90}$

$x = 0.\dot{7}$

$10x = 7.\dot{7}$

$9x = 7$

$x = \frac{7}{9}$

$\frac{41}{90} \times \frac{7}{9} = \frac{287}{810}$

(Total for Question 13 is 3 marks)

14 Here are the first four terms of a quadratic sequence.

$$-3, 3, 13, 27$$

Work out an expression, in terms of n, for the nth term of the sequence

$-3, 3, 13, 27$

$+6 \quad +10 \quad +14$

$+4 \quad +4$

$2n^2$

$2n^2 = 2, 8, 18, 32$

$-3, 3, 13, 27$

$-5 \; -5 \; -5 \; -5$

$2n^2 - 5$

(Total for Question 14 is 3 marks)

15 Prove that the sum of the squares of two consecutive odd numbers is always 2 more than a multiple of 8.

$(2n+1)^2 + (2n+3)^2$

$4n^2+4n+1 + 4n^2+12n+9$

$8n^2+16n+10$

$8n^2+16n+8+2$

$8(n^2+2n+1)+2$

(Total for Question 15 is 4 marks)

16 Make x the subject of

$$\sqrt[3]{\frac{ax+y}{8x}} = 10$$

$\frac{ax+y}{8x} = 1000$

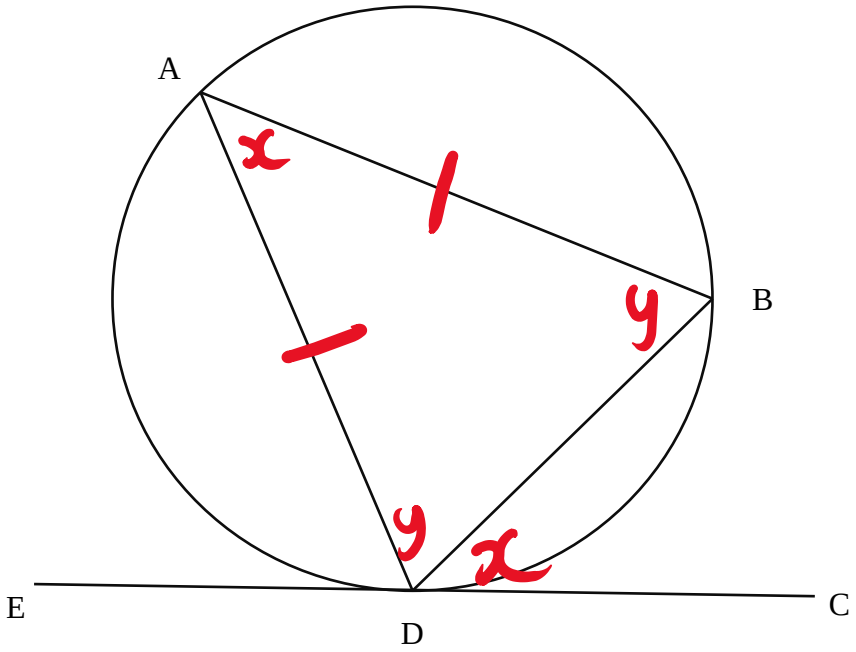
$ax+y = 8000x$

$y = 8000x - ax$ $\quad \frac{y}{8000-a} = x$

$y = x(8000-a)$

(Total for Question 16 is 4 marks)

17



Points ABD are on a circle such that:
AB = AD
Angle ABD = y^o
Angle BDC = x^o

Show that $\frac{1}{2}x + y = 90$
Give reasons for your answer

Base angles in an isosceles triangle are equal

$x + 2y = 180$

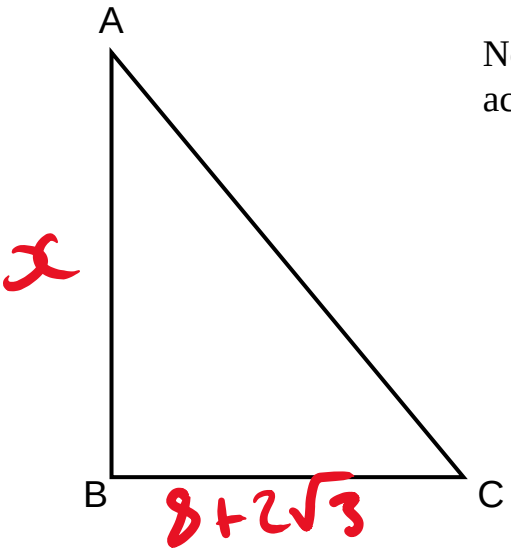
$\frac{1}{2}x + y = 90$

Alternate segment theorem

(Total for Question 17 is 4 marks)

18

Triangle *ABC* is shown below.
AB is perpendicular to BC.
BC = $(8 + 2\sqrt{3})$ cm



Not drawn accurately

Area of triangle ABC = $\left(17 + \sqrt{3}\right)$ cm^2
Work out the length of AB, in cm.
Give your answer in the form $a + \sqrt{b}$ where, a and b are integers.

$\frac{1}{2} \times 8+2\sqrt{3} \times x = 17+\sqrt{3}$

$4+\sqrt{3} \times x = 17+\sqrt{3}$

$x = \frac{17+\sqrt{3}}{4+\sqrt{3}} \times \frac{4-\sqrt{3}}{4-\sqrt{3}} = \frac{68-13\sqrt{3}-3}{16-3}$

$\frac{65-13\sqrt{3}}{13} = 5-\sqrt{3}$

(Total for Question 18 is 5 marks)

19 A circle ***C*** has the equation $x^2 + y^2 = r^2$

The point ***A*** with coordinates (6,8) lies on ***C.***

(a) Work out the length of the diameter of ***C***

$6^2+8^2=r^2$

$36+64=r^2$

$100=r^2$

$10=r$

$20=D$

20

(3)

(b) The tangent to circle C passes through the point (6,8).

Work out the equation of the tangent.

$\frac{8-0}{6-0}=\frac{8}{6}=\frac{4}{3}$

$y=-\frac{3}{4}x+C$

$8=-\frac{3}{4}\times 6+C$

$8=\frac{-18}{4}+C$

$12.5=C$

$y=-\frac{3}{4}x+12.5$

(4)

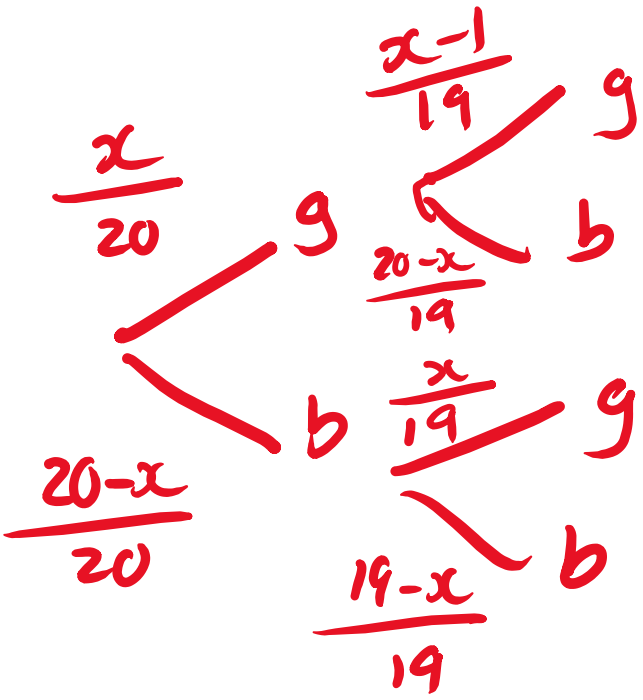
(Total for Question 19 is 7 marks)

20 There are 20 pupils in a class.
x are girls and the rest are boys.

$g = x$
$b = 20 - x$

Two pupils are going to be selected at random.

Work out the probability of selecting 1 girl and 1 boy, giving your answer in terms of x in its simplest form.



$P(g,b) = \frac{x}{20} \times \frac{20-x}{19} = \frac{20x-x^2}{380}$ +

$P(b,g) = \frac{20-x}{20} \times \frac{x}{19} = \frac{20x-x^2}{380}$

$\frac{20x-x^2}{190}$

(Total for Question 20 is 5 marks)

21 Solve

$$y + 5 = 2x$$
$$x^2 = 2y + 31$$

$y = 2x - 5$

You **must** show your working.

$x^2 = 2(2x-5)+31$

$x^2 = 4x - 10 + 31$

$x^2 = 4x + 21$

$x^2 - 4x - 21 = 0$

$(x-7)(x+3) = 0$

$x = 7 \quad x = -3$

$y = 2(7) - 5 = 9$

$y = 2(-3) - 5 = -11$

$x =$ 7 $\quad y =$ 9

or $x =$ −3 $\quad y =$ −11

(Total for Question 21 is 6 marks)

Total marks for this paper is 80