Write your name here

Surname	Other Names

Mathematics

Practice Set A
Paper 1 (Non-Calculator)
Foundation Tier

Time: 1 hour 30 minutes

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – there may be more space than you need.
- **Calculators may not be used**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets – use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

1 Write 564 to the nearest hundred.

600

(Total for Question 1 is 1 mark)

2 Here are 4 number cards.

3	8	4	1

(a) Write down the largest three digit number that can be made using these number cards.

843

(b) Arrange the cards to give the smallest possible answer to the sum. (1)

1	4	+	3	8

(1)

OR 18 + 34

(Total for Question 2 is 2 marks)

3 Write 0.7 as a fraction.

$\frac{7}{10}$

(Total for Question 3 is 1 mark)

4 Write $\frac{28}{42}$ as a fraction in its simplest form.

$\frac{28}{42} = \frac{14}{21} = \frac{2}{3}$

$\frac{2}{3}$

(Total for Question 4 is 1 mark)

5 (a) Simplify $4 \times 5y$

$20y$

(1)

(b) Simplify $6a - 2a + 3a$

$4a + 3a$

$7a$

(1)

(Total for Question 5 is 2 marks)

---

6 Write down a multiple of 7 that is between 40 and 50

42 or 49

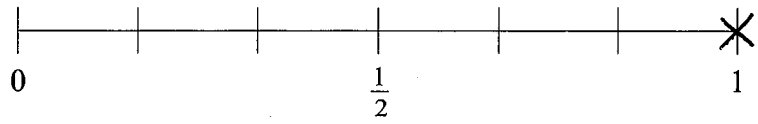
42

(Total for Question 6 is 1 mark)

---

7 An ordinary fair dice is thrown once.

(a) On the probability scale mark with a cross (X) the probability that the dice lands on a number less than 7.



(1)

(b) Write down the probability that the dice lands on 2.

$\frac{1}{6}$

(1)

(Total for Question 7 is 2 marks)

8 There are 30 pens in a box.

11 of the pens are black.
6 of the pens are green.
The rest of the pens are red.

$11 + 6 = 17$

$30 - 17 = 13$

One of the pens is chosen at random.

Find the probability that the pen is red.

$\frac{13}{30}$

(Total for Question 8 is 2 marks)

9 It costs £0.80 to buy 5 bananas.

Work out how much it would cost to buy 9 bananas.

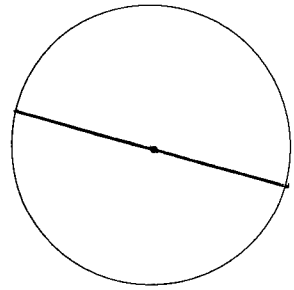
$\frac{0.80}{5} = 0.16$ 16p per banana

$16 \times 9 = 144$ 144p or £1.44

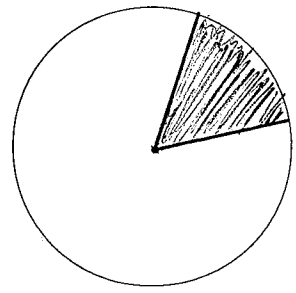
£1.44

(Total for Question 9 is 2 marks)

10 (a) On the diagram below, draw a diameter of the circle.



(b) On the diagram below, draw a sector of the circle.
Shade the sector.



(Total for Question 10 is 2 marks)

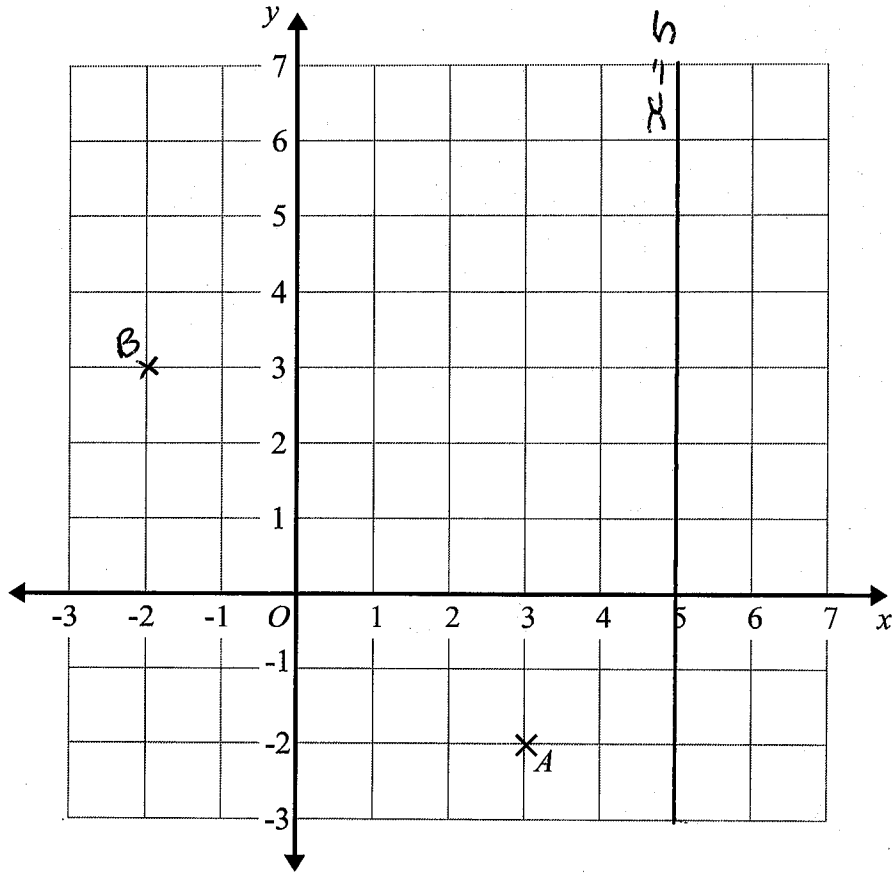
11 Write down all the factors of 18

1 18
2 9
3 6

1, 2, 3, 6, 9 and 18

(Total for Question 11 is 2 marks)

12



(a) Write down the coordinates of point A.

(3 , −2)

(1)

(b) On the grid mark with a cross (×) the point (–2, 3).
Label this point B.

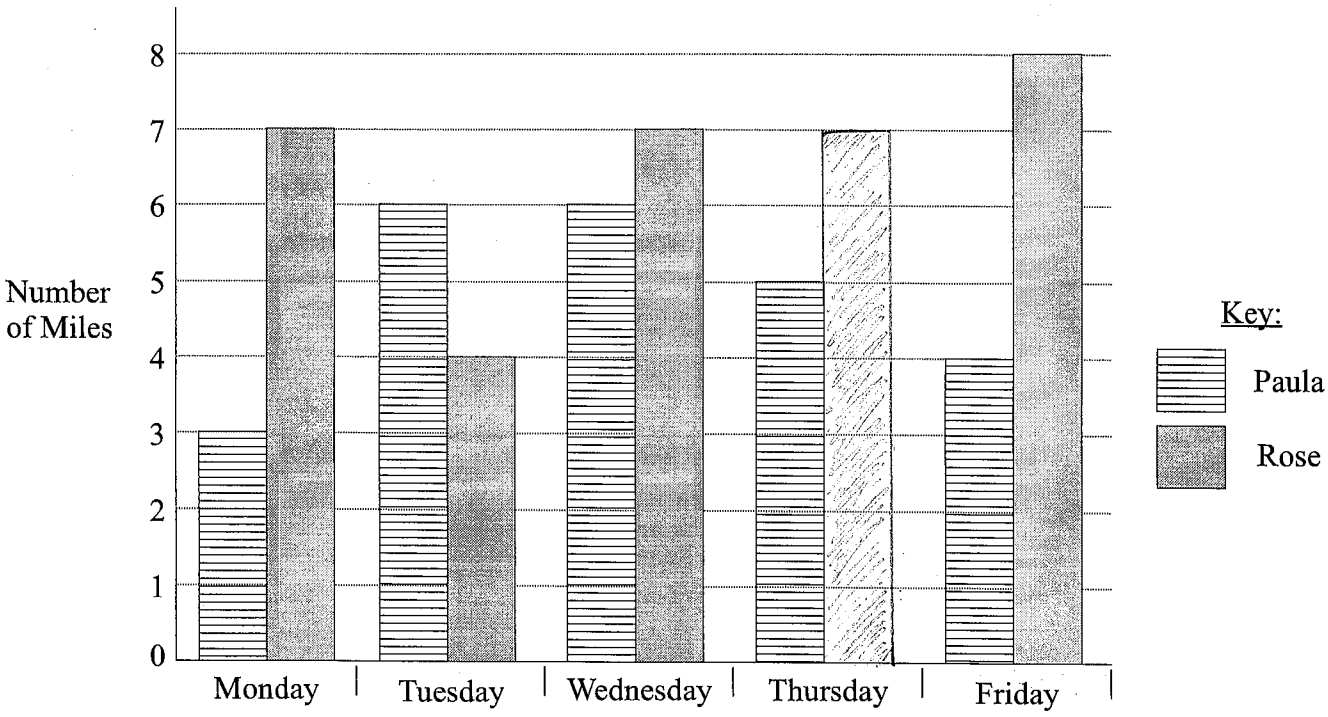
(1)

(c) On the grid, draw the line with equation $x = 5$

(1)

(Total for Question 12 is 3 marks)

13 Here is a bar chart showing the number of miles Paula and Rose ran from Monday to Friday in a week.



Rose runs further than Paula on Monday

(a) How much further?

7 − 3

4 miles

(1)

Rose ran 7 miles on Thursday

(b) Use this information to complete the bar chart. (1)

Rose is not going to run on Saturday.

(c) How many miles would Paula have to run on Saturday so that the number of miles she runs from Monday and Saturday is the same as the number of miles Rose runs from Monday to Saturday.

Rose 7 + 4 + 7 + 7 + 8 = 33 miles

11 + 14 + 8

25 + 8 = 33

Paula 3 + 6 + 6 + 5 + 4 = 24 miles 9

9 + 11 + 4

(2)

(Total for Question 13 is 4 marks)

33 − 24 = 9 miles

14 2 calculators cost £12.54 ×15
3 pens cost £1.77 ×10

Jude wants to buy 30 calculators and 30 pens.
He only has £200

Does Jude have enough money to buy 30 calculators and 30 pens?
You must show how you get your answer.

$$\begin{array}{r} 1254 \\ \times \quad 15 \\ \hline 6270 \\ 12540 \\ \hline 18810 \end{array}$$

£188.10

£1.77 × 10 = £17.70

$$\begin{array}{r} 188.10 \\ +\ 17.70 \\ \hline 205.80 \end{array}$$

£205.80

No 30 calculators + 30 pens cost more than £200

(Total for Question 14 is 4 marks)

---

15 Write the following numbers in order of size.
Start with the smallest number.

$$8\overline{)100.0} = 12.5$$

62% $\frac{5}{8}$ 0.61 0.7 $\frac{3}{5}$

0.62 0.625 0.6

$\frac{1}{8} = 12.5\%$

$\frac{5}{8} = 62.5\% = 0.625$

0.6, 0.61, 0.62, 0.625, 0.7

(Total for Question 15 is 2 marks)

---

16 In a bag there are blue sweets, red sweets and green sweets.
The ratio of blue sweets to red sweets to green sweets is 6:4:3
BRG 13 PARTS

What fraction of the sweets are red?

$\frac{4}{13}$

.....

(Total for Question 16 is 2 marks)

17 Work out 182% of 160.

100% = 160

50% = 80

10% = 16

30% = 48

1% = 1.6

2% = 3.2

160
80
48
+ 3.2
291.2

291.2

(Total for Question 17 is 2 marks)

18 $q = 2p + 5r$

$p = 4$
$r = -3$

Work out the value of q.

$q = 2(4) + 5(-3)$
$= 8 - 15$
$= -7$

-7

(Total for Question 18 is 2 marks)

19 A piece of string is 210 cm long.

John cuts three 30 cm lengths off the string.
He then cuts the rest into as many 35 cm lengths as possible.

Work out how many 35 cm lengths of string John cuts.

$3 \times 30 = 90$

210
− 90
120

120cm left

35 + 35 = 70
70 + 35 = 105 (3 lengths)

35 × 4 = 140 (More than 120)

3

(Total for Question 19 is 3 marks)

20 (a) Expand $3a(a-7)$

$3a^2 - 21a$

(2)

(b) Solve $5(b+2)=30$

$5b + 10 = 30$

$5b = 20$

$b = 4$

$b =$ 4

(2)

(Total for Question 20 is 4 marks)

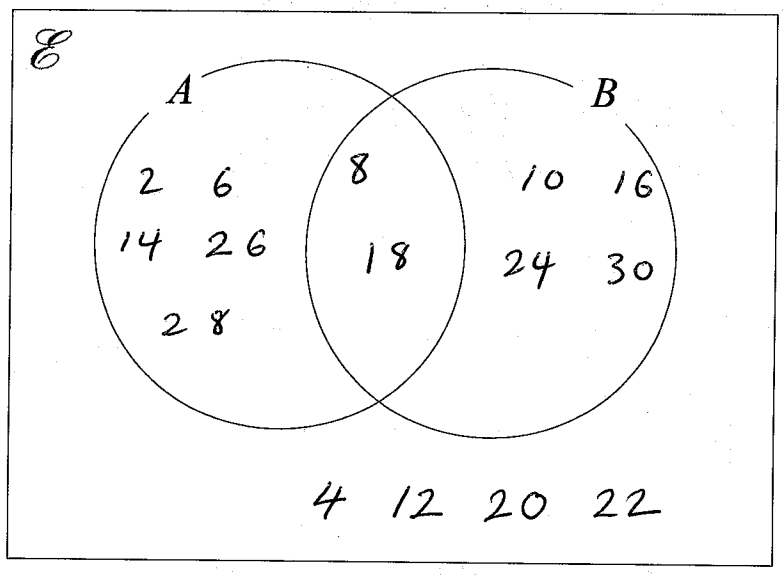
---

21 $\mathscr{E}$ = {even numbers between 1 and 31}

A = {~~2, 6, 8, 14, 18, 26, 28~~}

B = {~~8, 10, 16, 18, 24, 30~~}

(a) Complete the Venn diagram to represent this information.



(2)

A number is chosen at random from the universal set, $\mathscr{E}$

(b) What is the probability that the number is in the set $A \cup B$?

$\frac{11}{15}$

(2)

(Total for Question 21 is 4 marks)

22 Alfie, Bertie and Charlie share £115
The amount Alfie and Bertie get is in the ratio 7:5
The amount Bertie and Charlie get is in the ratio 3:2

How much does Alfie get?

A : B B : C

7 : 5 3 : 2

×3 ×3 ×5 ×5

21 : 15 15 : 10

A : B : C

21 : 15 : 10 46 PARTS

$$46 \overline{)1150} = 002.5$$

$115 \div 46 = 2.5$

21×2.5

$21 \times 2 = 42$

$21 \times 0.5 = 10.5$

£52.50

(Total for Question 22 is 3 marks)

23 (a) Work out $\frac{7}{8} \div \frac{2}{5}$

Give your answer as a mixed number in its simplest form.

$\frac{7}{8} \times \frac{5}{2} = \frac{35}{16} = 2\frac{3}{16}$

$2\frac{3}{16}$

(2)

(b) Work out $1\frac{3}{4} \times \frac{2}{5}$

$\frac{7}{4} \times \frac{2}{5} = \frac{14}{20} = \frac{7}{10}$

$\frac{7}{10}$

(2)

(Total for Question 23 is 4 marks)

24 A circle has a radius of 32 mm.

(a) Work out an estimate for the area of the circle.

$\pi (32)^2$

$3 (30)^2$

$3 (900) = 2700$

2700 mm^2

(3)

(b) Is your answer to part (a) an underestimate or an overestimate?
Give a reason for your answer.

underestimate - I rounded down π and r

(1)

(Total for Question 24 is 4 marks)

---

25 Lottie buys a pack of 30 cans of lemonade.
She pays £10.50 for the cans.

Lottie sells 22 of the cans for 50p each.
She sells the remaining cans for 20p each.

Work out Lottie's percentage profit.

$22 \times 0.5 = £11$

$8 \times 0.2 = £1.60$

$£11 + £1.60 = £12.60$

$$\% \text{ Profit} = \frac{12.60 - 10.50}{10.50} \times 100$$

$$= \frac{2.10}{10.50} \times 100$$

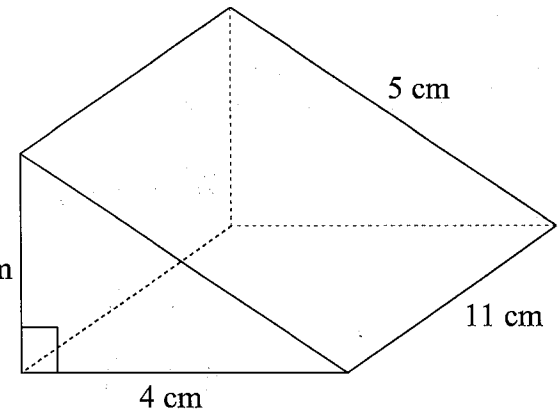
$$= \frac{210}{10.5} = \frac{420}{21} = 20$$

20 %

(Total for Question 25 is 4 marks)

26 The diagram shows a triangular prism.

Find the total surface area of the triangular prism.



Front $\frac{1}{2}(4)(3) = 6\text{cm}^2$

Back $= 6\text{cm}^2$

Bottom $4 \times 11 = 44\text{cm}^2$

Side $3 \times 11 = 33\text{cm}^2$

Slanted side $5 \times 11 = 55\text{cm}^2$

$$\begin{array}{r} 55 \\ 44 \\ 33 \\ 6 \\ +\ 6 \\ \hline 144 \end{array}$$

144 cm²

(Total for Question 26 is 4 marks)

---

27 Dani leaves her house at 08 00.
She drives 32 miles to work.
She drives at an average speed of 40 miles per hour.
At what time does Dani arrive at work?

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

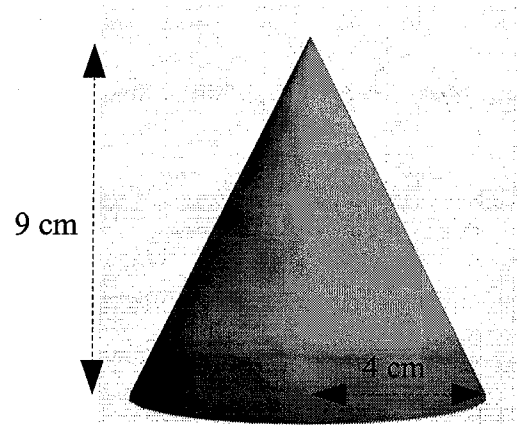
$$\text{time} = \frac{\text{distance}}{\text{speed}}$$

$$= \frac{32}{40} = \frac{16}{20} = \frac{8}{10} = \frac{48}{60} = 48 \text{ mins}$$

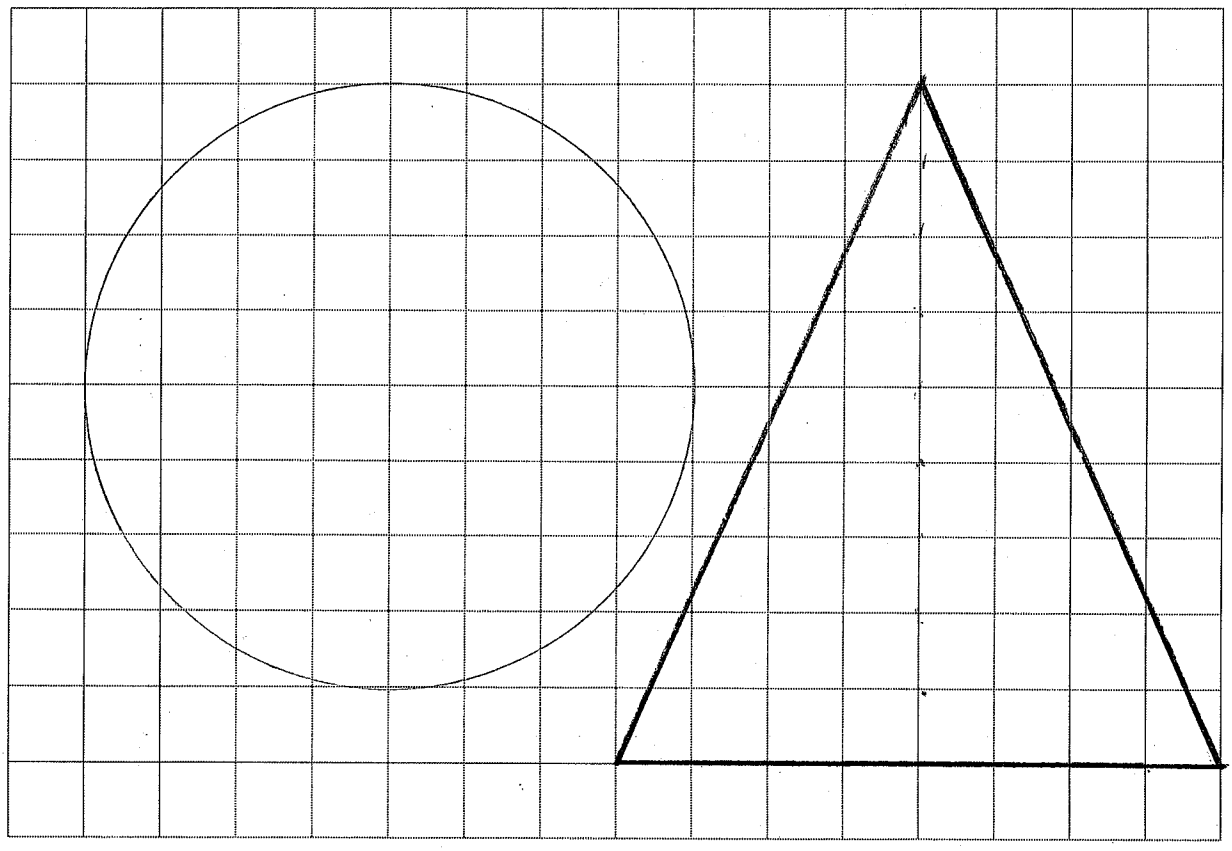
0848

(Total for Question 27 is 3 marks)

28 The diagram shows a cone with radius 3 cm and perpendicular height of 8 cm



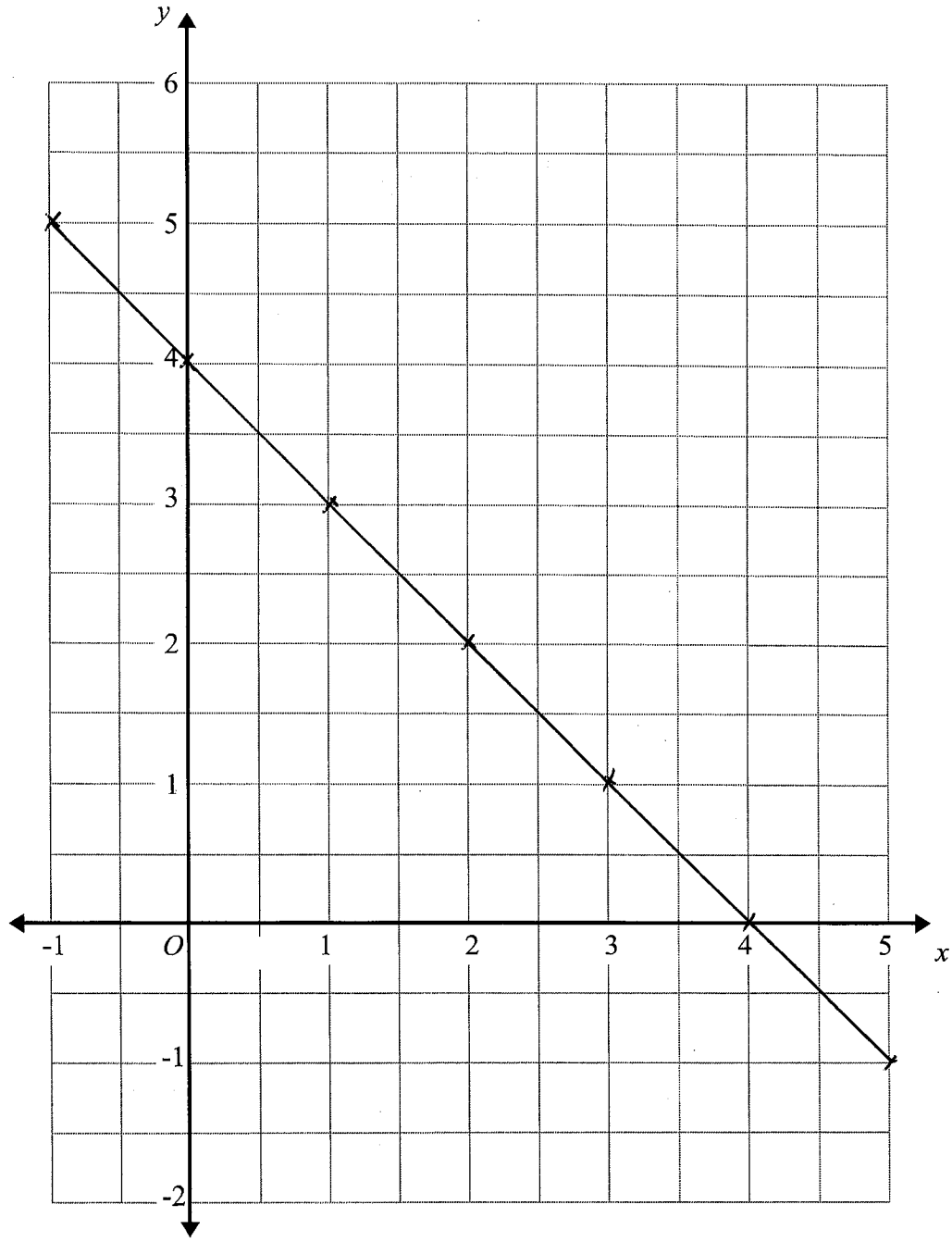
On the centimetre grid below, draw the plan and the side elevation of the cone.



(Total for Question 28 is 3 marks)

29 On the grid, draw the graph of $x + y = 4$ for x values from -1 to 5

x	-1	0	1	2	3	4	5
y	5	4	3	2	1	0	-1



(Total for Question 29 is 3 marks)

30 $\boldsymbol{a}=\begin{pmatrix}4\\-3\end{pmatrix}$ and $\boldsymbol{b}=\begin{pmatrix}5\\1\end{pmatrix}$

(a) Write down as a column vector

(i) $\mathbf{a}+\mathbf{b}$

$\begin{pmatrix}4\\-3\end{pmatrix}+\begin{pmatrix}5\\1\end{pmatrix}=\begin{pmatrix}9\\-2\end{pmatrix}$

$\begin{pmatrix}9\\-2\end{pmatrix}$

(1)

(ii) $2\mathbf{a}-\mathbf{b}$

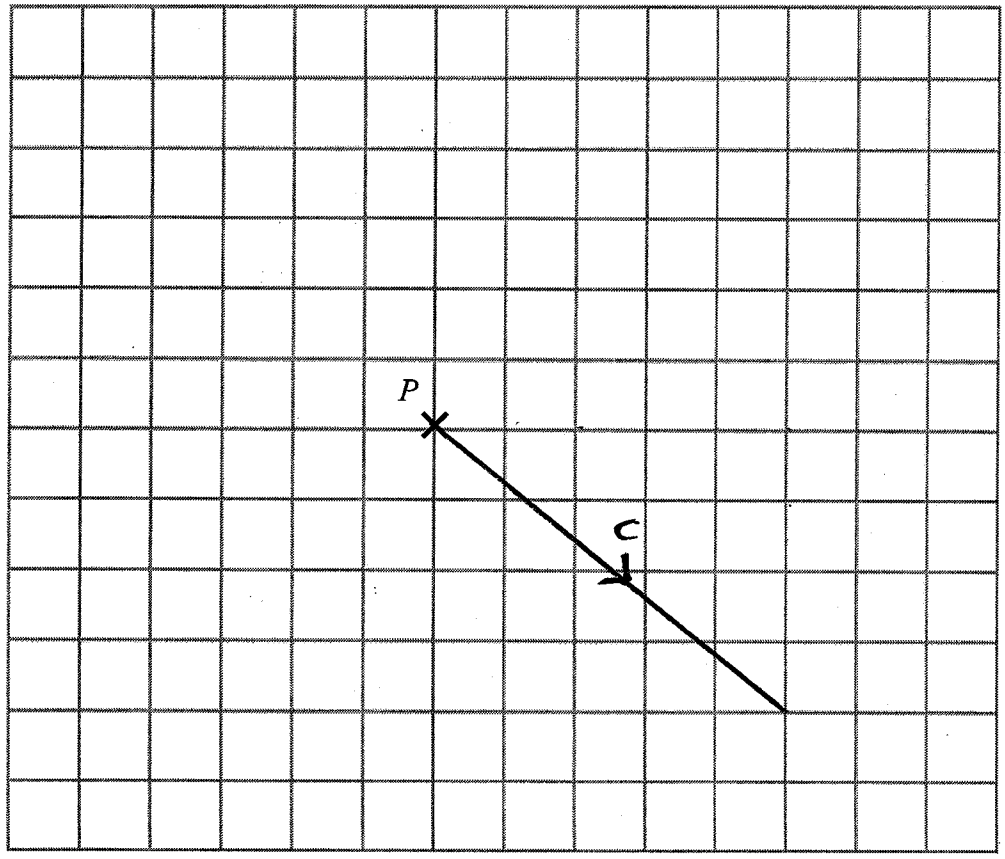
$2\begin{pmatrix}4\\-3\end{pmatrix}-\begin{pmatrix}5\\1\end{pmatrix}=\begin{pmatrix}8\\-6\end{pmatrix}-\begin{pmatrix}5\\1\end{pmatrix}$

$\begin{pmatrix}3\\-7\end{pmatrix}$

(2)

$\boldsymbol{c}=\begin{pmatrix}5\\-4\end{pmatrix}$

(b) From the point P, draw the vector $\mathbf{c}$



(1)

(Total for Question 30 is 4 marks)