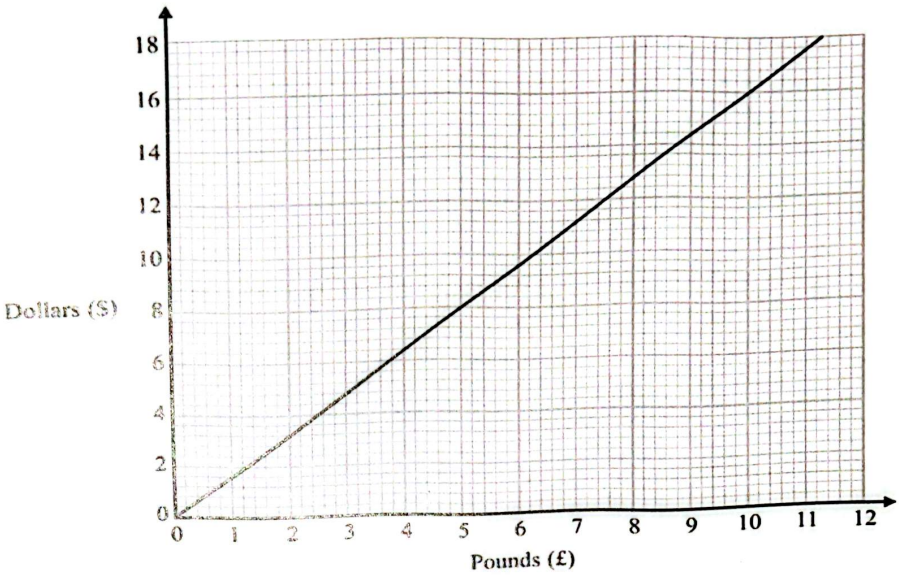
3 _____ / 7

You can use this conversion graph to change between pounds (£) and dollars ($).

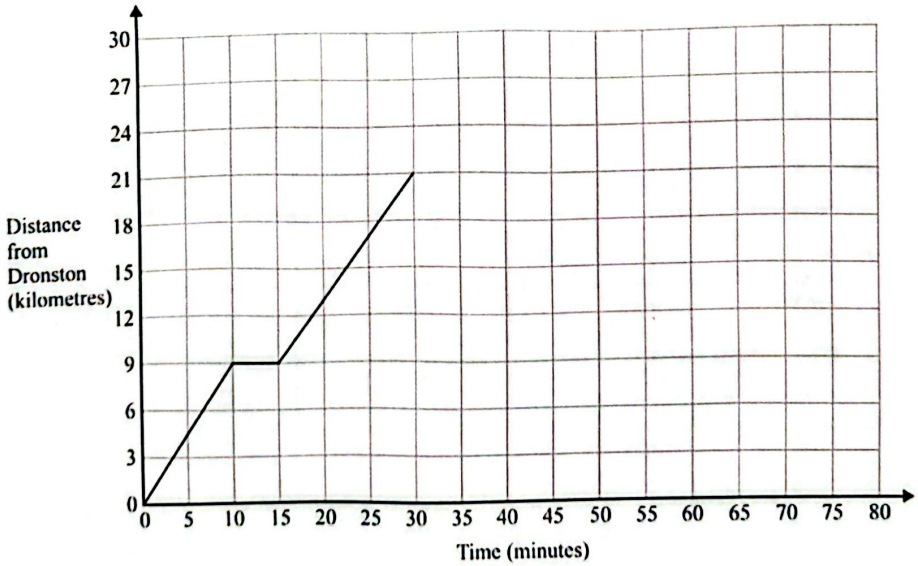


Use the conversion graph to change £5 to dollars.

8$

(Total for question = 1 mark)

Q2. A coach travels from Dronston to Luscoe.
The travel graph for this journey is shown below.



Work out the average speed of the coach, in kilometres per hour, for the first 10 minutes of the journey.

54 Km/h

(Total for question = 2 marks)

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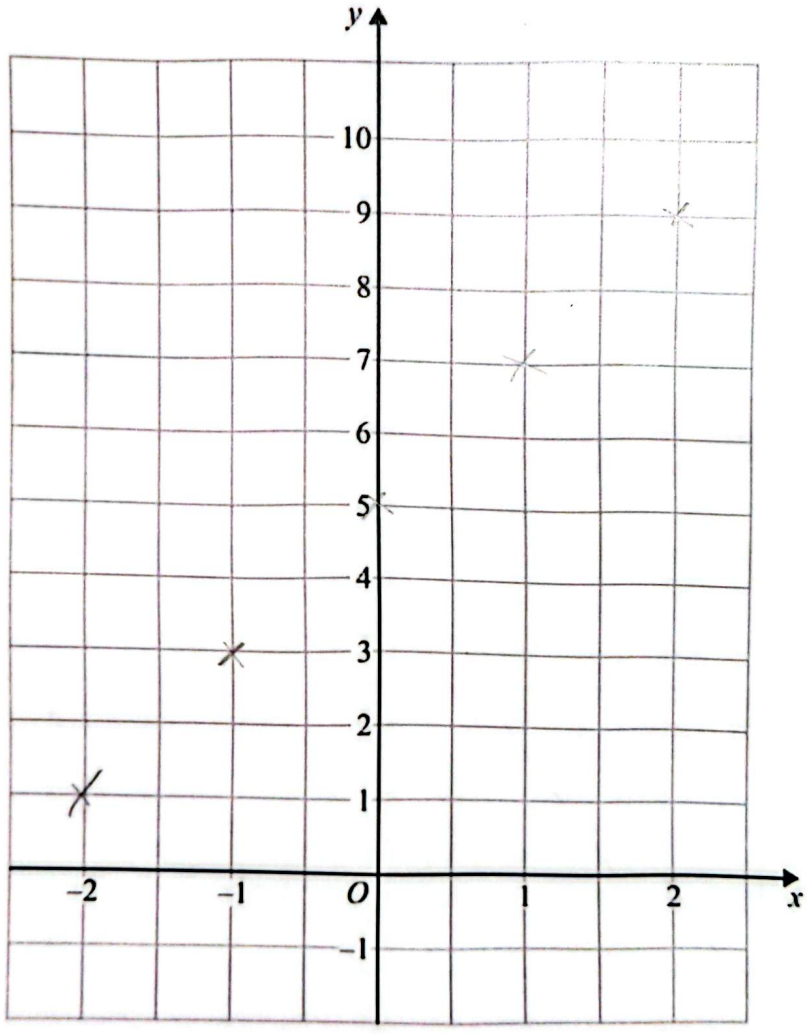
Q3.

(a) Complete the table of values for $y = 2x + 5$

x	−2	−1	0	1	2
y	1	3	5	7	9

(2)

(b) On the grid, draw the graph of $y = 2x + 5$ for values of x from $x = -2$ to $x = 2$



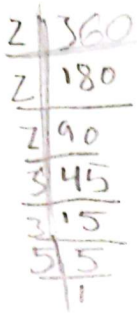
(2)

(Total for question = 4 marks)

CamScanner

4 _____ / 16

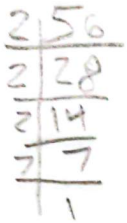
4. Write 360 as a product of its prime factors.



$2^3 \times 3^2 \times 5$

(Total for question = 3 marks)

Q5. Express 56 as the product of its prime factors.



$2^3 \times 7$

(Total for question = 2 marks)

Q6.

(a) Write down the value of

(i) 7^0

1

(ii) 5^2

25

(iii) $16^{\frac{1}{2}}$

4

(3)

(b) Simplify fully $\dfrac{10a^7b^4}{2a^3b}$

$5a^4b^3$

(2)

(Total for question = 5 marks)

Q7.

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(a) Simplify $(p^2)^5$

p^{10}

(1)

(b) Simplify $12x^7y^3 \div 6x^3y$

$2x^4y^2$

(2)

(Total for question = 3 marks)

Q8.

(a) Simplify $m^5 \div m^3$

m^2

(1)

(b) Simplify $5x^4y^3 \times x^2y$

$5x^6y^4$

(2)

(Total for question = 3 marks)

KPI 5 _____ / 4

Q9.

The line CD is drawn above.

Use ruler and compasses to construct the perpendicular bisector of CD.
You must show clearly all your construction arcs.

(Total for question = 2 marks)

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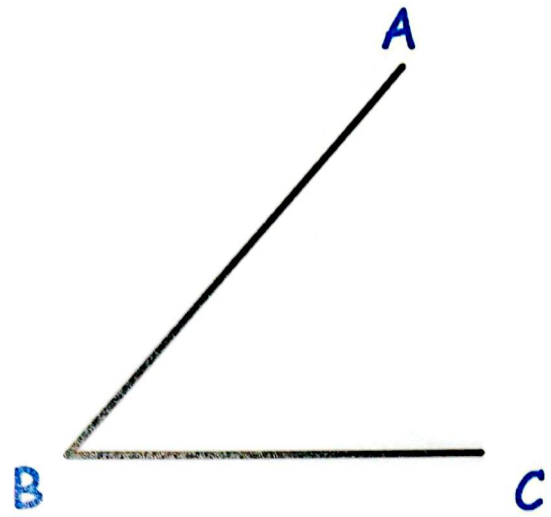
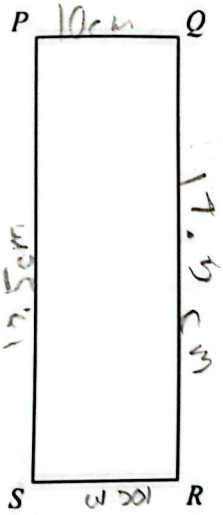
. Using ruler and compasses, construct the bisector of angle ABC.



(Total for question = 2 marks)

KPI 6 _____ / 18

Q11. Here are two rectangles.



QR = 10cm
$BC = PQ$

The perimeter of $ABCD$ is 26 cm.
The area of $PQRS$ is 45 cm^2.

Find the length of AB.

Area of PQRS (A)=45cm² (A)=17.5

RQ=SR PS=QR

PS+QR=45÷PQ

PS+QR=45-10

PS+QR=35

∴ l = 35/2

(Total for question = 4 marks)

Q12. The diagram shows a wall.

Not drawn accurately

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(Total for question = 3 marks)

Q13. Here is a triangular prism.

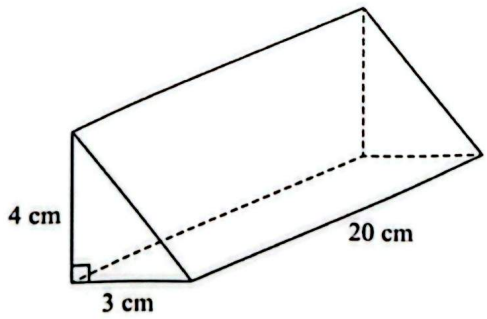


Diagram **NOT** accurately drawn

Work out the volume of this triangular prism.

.....

(Total for question = 4 marks)

CamScanner

4.

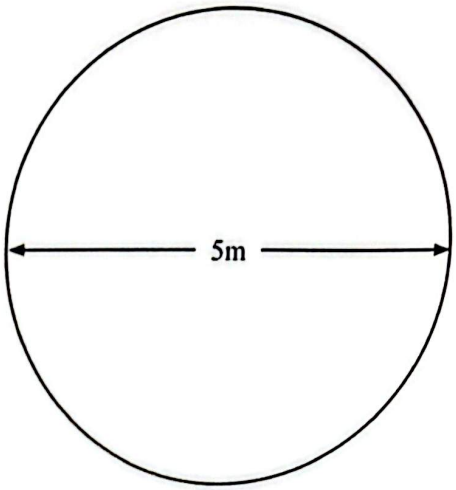


Diagram **NOT** accurately drawn

Jon has a flower garden in the shape of a circle.
The diameter of the garden is 5 metres.

Jon wants to put fencing around the edge of the garden.
The fencing costs £1.80 per metre.

Work out the total cost of the fencing.

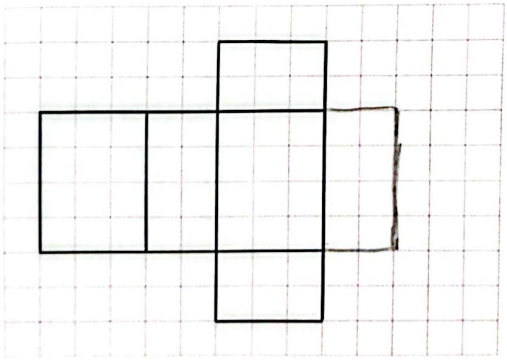
Circumference = πd
$= 3.14 \times 5$
$= 15.7\text{m}$

Cost of fencing $= 15.7 \times 1.80$
$= £28.26$

£ 28.26

(Total for question = 3 marks)

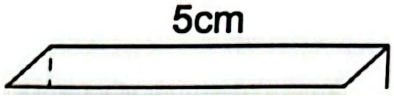
Q15. Part of the net of a cuboid is shown below.



Complete the net of the cuboid on the grid above.

(Total for question = 1 mark)

Q16. Shown below is a cuboid.



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(Total for question = 3 marks)

KPI 7 _____ / 22

Q17.

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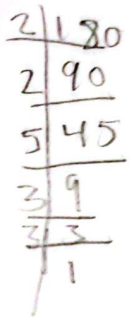
Express 180 as a product of its prime factors.



$2^2 \times 5 \times 3^2$

(3)

Martin thinks of two numbers.

He says,

"The Highest Common Factor (HCF) of my two numbers is 6
The Lowest Common Multiple (LCM) of my two numbers is a multiple of 15"

(b) Write down **two** possible numbers that Martin is thinking of.

6 , 30

(2)

(Total for question = 5 marks)

Q18.

$h = 3t^2$

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(a) Work out the value of h when $t = 5$

$h = 3t^2$

$h = 3 \times 5^2$

$h = 3 \times 25$

$h = 75$

75 .....

(2)

$h = 3t^2$

(b) Work out the value of t when $h = 108$

$108 = 3t^2$ $t = 6$

$t = \sqrt[2]{\frac{108}{3}}$

$t = \sqrt[2]{36}$

6 .....

(2)

(c) Make a the subject of the formula

$v = u + at$

$a = \frac{v - u}{t}$

.....

(2)

(Total for question = 6 marks)

Q19. Solve the Following. Show your algebraic working

a. Solve $4(x + 3) = 2x + 8$

$4(x + 3) = 2x + 8$

$-x \quad\quad -x$

$4(3) = x + 8$

$-3 \quad\quad -3$

$4 = x + 5$

$4 - 5 = x$

$-1 = x$

$x =$ -1 ..... (3)

b. Steve is asked to solve the equation $5(x + 2) = 47$

Here is his working.

$5(x + 2) = 47$

$5x + 2 = 47$

$5x = 45$

$x = 9$

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..... (1)

c. Solve $5x - 13 = 17 + 8x$

$5x - 13 = 17 + 8x$ $10 \div x$

$-5x \quad -5x$

$-13 = 17 + 3x$

$-13 - 17 = 3x$

$30 = 3x$

$\div 3 \quad \div 3$

$x = 10$ ..... (2)

d. Solve $(4 - x) = 7 - 3x$

$(4-x) = 7 - 3x$

$4 - x = 7 - 3x$

$-x \quad -x$

$4 = 7 - 2x$

$4 - 7 = 2x$

$-3 = 2x$

$\div 2 \quad \div 2$

$-1.5 = x$

$x = -1.5$ ..... (3)

(Total for question = 9 marks)

Q20. Make e the subject of the formula $h = 3e + f$

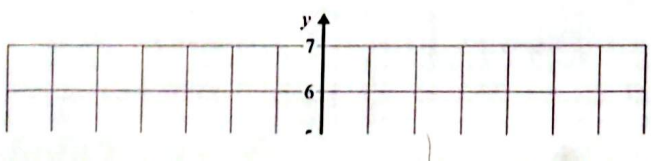
$e = \frac{h - f}{3}$

.....

(Total for question = 2 marks)

KPI 8 _____ / 11

Q21.



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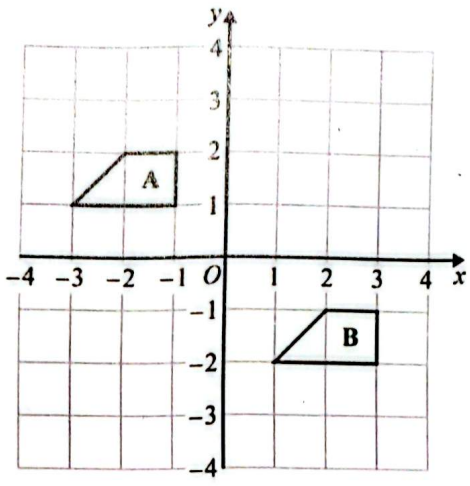
(Total for question = 1 mark)

Q22.



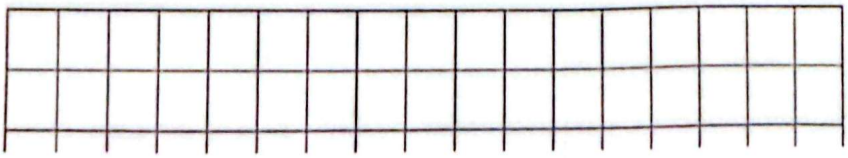
Describe the single transformation that maps shape **A** onto shape **B**.

.....

.....

(Total for question = 2 marks)

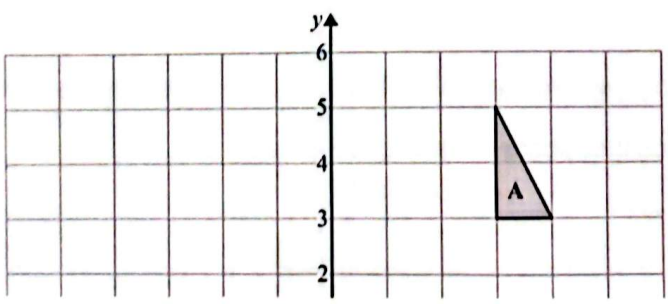
Q23.



On the grid, enlarge the shape by scale factor 3, centre A.

(Total for question = 3 marks)

Q24.



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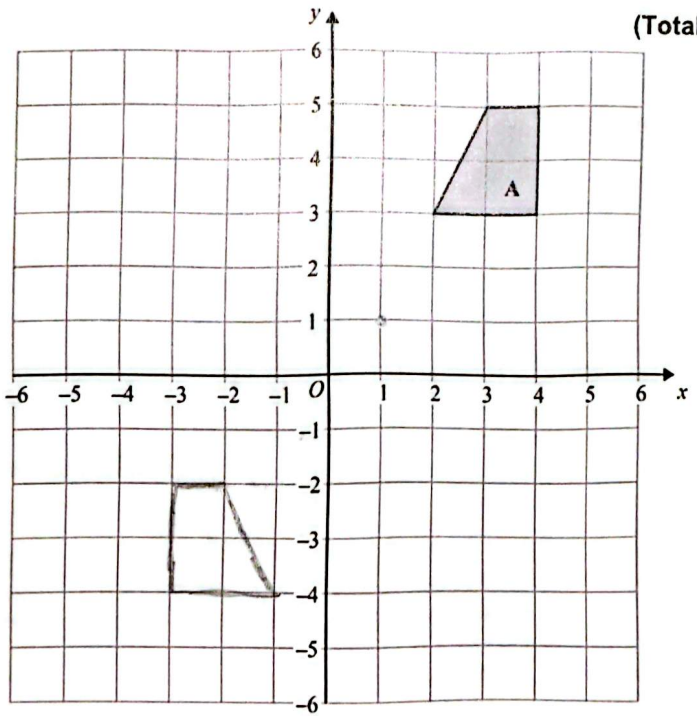
Describe fully the single transformation that maps triangle **A** onto triangle **B**.

.....

.....

(Total for question = 3 marks)

Q25.



On the grid, rotate shape **A** 180° about the point (1, 1).

(Total for question = 2 marks)

KPI 9 _____ / 3

Q26.

Tom and Amy set the alarms on their phones to sound at 6.45 am.

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alarms sound together at 6.45 am.
m's alarm then sounds every 9 minutes.
my's alarm then sounds every 12 minutes.

At what time will both alarms next sound together?

3 | 9
3 | 3
1

2 | 12
2 | 6
3 | 3
1

LCM = 3 × 2 × 2 × 3 = 36

7:16

(Total for question = 3 marks)

KPI 10 _____ / 5

Q27.

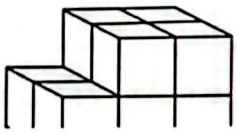
The front elevation of a solid shape is a triangle.
The side elevation of the solid shape is a triangle.
The plan view of the solid shape is a square.

Write down the name of the shape.

.....

(Total for question = 1 mark)

Q28. **The diagram below shows a shape made with centimetre cubes.**



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(Total for question = 4 marks)

KPI 11 _____ / 6

Q29. On the grid, draw the graph of $y = 3x - 2$ for values of x from -1 to 3

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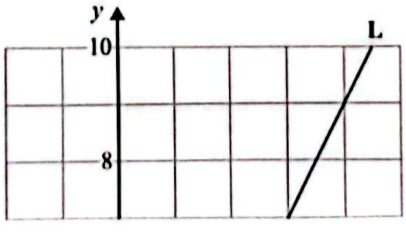
(Total for question = 3 marks)

Q30. Line **L** is drawn on the grid below.



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.....

(Total for question = 3 marks)

KPI 12 _____ / 8

Q31.

The diagram shows a garden in the shape of a rectangle.

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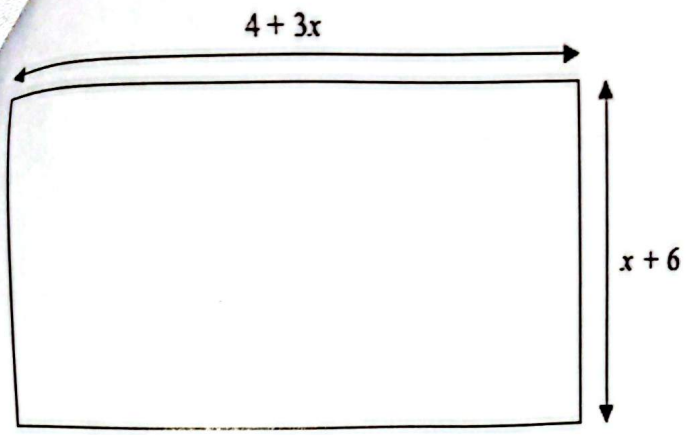

Diagram **NOT** accurately drawn

All measurements are in metres.
The perimeter of the garden is 32 metres.

Work out the value of x

.....

(Total for question = 4 marks)

Q32.

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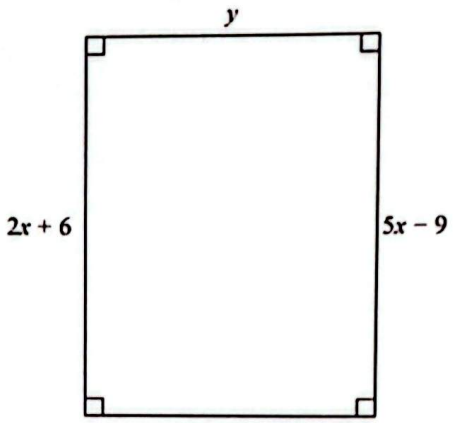
Here is a rectangle.



All measurements are in centimetres.
The area of the rectangle is 48 cm^2.
Show that $y = 3$

(Total for question = 4 marks)

END

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