

Q1. $p = 2^4 \times 2^3$

$$q = 2^5$$

Work out the value of $\frac{p}{q}$

You must show your working.

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(Total 2 marks)

Q2. (a) Express 66 as a product of its prime factors.

.....

(2)

(b) Express 132^2 as a product of its prime factors.

.....

(2)
(Total 4 marks)

M1.

Working	Answer	Mark	Additional Guidance
$\frac{2^4 \times 2^3}{2^5}$ $\frac{2^4 \times 2^3}{2^5} = \frac{2^{4+3}}{2^5} = 2^{7-5}$ $\frac{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2}{2 \times 2 \times 2 \times 2 \times 2} = 2 \times 2$ <p>OR</p> $2^4 = 16, 2^3 = 8, \text{ SO } p = 16 \times 8$ $= 128$ $2^5 = 32 = q$	2 ² or 4	2	<p>M1 for adding the indices in p and then subtracting the indices in the quotient</p> <p>A1 for 2² or 4</p> <p>OR</p>

Total for Question: 2 marks

M2.

	Working	Answer	Mark	Additional Guidance
(a)	$66 = 2 \times 33 = 2 \times 3 \times 11$	$2 \times 3 \times 11$	2	M1 Successive division by 2 and 3 either by a factor tree or by repeated division A1 cao
(b)	$132^2 = 4 \times 66^2$ $2^2 \times (2 \times 3 \times 11)^2$ OR $132^2 = 17424 = 2 \times 8712$ $= 2 \times 2 \times 4356 =$ $2^3 \times 2178 = 2^4 \times 1089$ $= 2^4 \times 3 \times 363 = \dots$	$2^4 \times 3^2 \times 11^2$	2	M1 $(2 \times 3 \times 11)^2$ A1 $2^4 \times 3^2 \times 11^2$ oe OR M1 $132^2 = 17424$ and at least 3 correct steps in for example the factor tree
				Total for Question: 4 marks

Resource currently unavailable.