Mark scheme

Direct and inverse proportion

Mathematics 0580 · Questions from Paper 2 and Paper 4

Total marks

30

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
3	2	3	3	2	3	3	3	4	4	**30**

Question 1 **[3]**

1	12	**3**	**M2** for $9 \times 8 = 6y$ oe OR **M1** for $y = \frac{k}{x}$ oe **M1** for $[y =]$ *their* $\frac{k}{6}$

Question 2 **[2]**

2	$\frac{12}{\sqrt{w}}$ oe final answer	**2**	**M1** for $x = \frac{k}{\sqrt{w}}$ oe

Question 3 **[3]**

3(a)	$d = 4.9t^2$	**2**	**M1** for $d = kt^2$
3(b)	19.6	**1**	**FT** *their* 4.9×4

Question 4 **[3]**

4(a)	$[F =]\frac{108}{d^2}$ final answer	**2**	**M1** for $F = \frac{k}{d^2}$ oe or better
4(b)	$[n =]\frac{1}{4}$ or 0.25	**1**	

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Question 5 **[2]**

5	$\frac{81}{(y-2)^2}$ final answer	**2**	**M1** for $z=\frac{k}{(y-2)^2}$ oe or better

Question 6 **[3]**

6	38	**3**	**M2** for $12\times\sqrt{4.25-2}=3\times\sqrt{x-2}$ OR **M1** for $y=\frac{k}{\sqrt{x-2}}$ oe **M1** for $3=\frac{\text{their } k}{\sqrt{x-2}}$ oe

Question 7 **[3]**

7	8	**3**	**M1** for $y=\frac{k}{\sqrt[3]{x+5}}$ oe **M1** for substituting *their k* into $y=\frac{k}{\sqrt[3]{22+5}}$ oe OR **M2** for $12\sqrt[3]{3+5}=y\sqrt[3]{22+5}$ oe

Question 8 **[3]**

8	$\frac{16}{\sqrt{x}}$ oe final answer	**3**	**M2** for $w=\frac{k}{\sqrt{x}}$ oe OR **M1** for $w=j\sqrt{y}$ **M1** for $y=\frac{c}{x}$

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Question 9 **[4]**

9(a)	12	**3**	**M1** for $y = k(x-1)^2$ oe **M1** for $y = \textit{their}\ k(7-1)^2$ oe
9(b)	divided by 3 oe	**1**	

Question 10 **[4]**

10	$y = \dfrac{242}{(6w+2)^2}$ oe final answer	**4**	**M3** for $\dfrac{8(3.5+2)^2}{\left(\dfrac{90}{15}w+2\right)^2}$ may be done in stages or for correct answer seen then spoiled OR **M2** for $y = \dfrac{242}{(x+2)^2}$ or **M1** for $y = \dfrac{k}{(x+2)^2}$ oe or better **B1** for $w = \dfrac{x}{6}$ oe

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