



**Published**

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### Abbreviations

awrt	answers which round to
cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
nfww	not from wrong working
soi	seen or implied

Question	Answer	Mark	Part Marks
<b>1</b>	$4\frac{5}{6}$	<b>2</b>	<b>M1</b> for $4 + \frac{3}{6} + \frac{2}{6}$ or $\frac{9}{6} + \frac{20}{6}$ oe
<b>2</b>	1 [h] 39 [min]	<b>2</b>	<b>M1</b> for $90 \times 1.1$ oe
<b>3</b>	69	<b>2</b>	<b>M1</b> for $0.5(180 - 42)$
<b>4</b>	$[\pm] \frac{1}{\sqrt{t}}$ oe	<b>2</b>	<b>M1</b> for $tp^2 = 1$ or $\sqrt{t} = \frac{1}{p}$ or better
<b>5 (a)</b>	$\frac{42}{60}$ oe	<b>1</b>	
<b>(b)</b>	840	<b>1FT</b>	<b>FT</b> their (a) $\times 1200$
<b>6</b>	$[x = ] 1$ $[y = ] - 2$	<b>1</b> <b>1</b>	If 0 scored <b>SC1</b> for correct substitution and evaluation of other variable
<b>7</b>	$1.6 \times 10^{19}$	<b>2</b>	<b>B1</b> for $1.6 \times 10^n$ or $k \times 10^{19}$ or correct answer not in SF
<b>8</b>	$x < 1$ or $1 > x$	<b>2</b>	<b>M1</b> for $9 - 2 > x + 6x$ oe or answer of 1 with incorrect inequality
<b>9 (a)</b>	-2	<b>1</b>	
<b>(b) (i)</b>	8	<b>1</b>	
<b>(ii)</b>	2	<b>2</b>	<b>M1</b> for $8^{\frac{1}{3}}$ or $\frac{1}{\frac{1}{2}}$ oe If 0 scored then <b>SC1</b> for answer $\frac{1}{2}$

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<b>Question</b>	<b>Answer</b>	<b>Mark</b>	<b>Part Marks</b>
<b>10</b>	$\begin{pmatrix} 9 \\ 6 \end{pmatrix}$	<b>4</b>	<b>B3</b> for (9, 6) or <b>B1</b> for (0, 12) soi <b>B1</b> for (18, 0) soi <b>M1</b> for (0.5 <i>their</i> 18, 0.5 <i>their</i> 12)
<b>11</b>	$(2p - q)(1 + x)$	<b>2</b>	<b>B1</b> for $2p - q + x(2p - q)$ or $2p(1 + x) - q(1 + x)$
<b>12</b>	$5(\sqrt{2} - 1)$ or $5\sqrt{2} - 5$	<b>2</b>	<b>M1</b> for $\times \frac{\sqrt{2} - 1}{\sqrt{2} - 1}$
<b>13</b>	$8\pi + 16$ oe	<b>3</b>	<b>B1</b> for radius = 8 and <b>M1</b> for $\pi \times$ <i>their</i> radius or <i>their</i> curved length + $2 \times$ <i>their</i> radius  or if 0 scored <b>SC2</b> for final answer $\sqrt{32}(\pi + 2)$ oe
<b>14</b>	32 13	<b>1</b> <b>1</b>	
<b>15</b>	$\frac{6}{\sqrt{x}}$ oe	<b>2</b>	<b>M1</b> for $y = \frac{k}{\sqrt{x}}$ or <b>M1</b> for $k = 6$ with no correct equation seen
<b>16</b>	12	<b>3</b>	<b>B1</b> for $2 \log 3 = \log 9$ or $3 \log 2 = \log 8$ and <b>M1</b> for correct use of $\log a + \log b = \log ab$ or $\log a - \log b = \log \left( \frac{a}{b} \right)$
<b>17</b>	Stretch $x$ -axis invariant, factor 3	<b>1</b> <b>1</b>	