Mark schemes

Q1.

(a) $(180, 0)$

B1

Additional Guidance

Condone degrees symbol on 180

Condone $(\pi, 0)$

B1

(b) $(-270, 1)$

B1

Additional Guidance

Condone degrees symbol on 270

Condone $(\dfrac{-3\pi}{2}, 1)$

B1

[2]

Q2.

(a) 2

B1

(b) 170

B1

[2]

Q3.

1.5

B1

[1]

Q4.

(a) $y = \tan x$

B1

(b) $y = 2x$

B1

[2]

Q5.

(a) 120

B1

(b)   240 or 300

Either value

B1

[2]

Q6.
(a)   *C*

Do not allow if more than one answer selected

B1

(b)   *A*

Do not allow if more than one answer selected

B1

[2]

Q7.
Valid criticism

eg
(y =) 0.5 should be (y =) 1
y = 0.5 should be when x = 1
When x = 0 y = 1
0.5 is incorrect
Crosses y axis in wrong place
Graph should start at 1
0.5⁰ = 1

B1

Additional Guidance

Do not accept statements which are contradictory

He does not have a scale on the *x* axis

B0

It does not pass through zero

B0

The line should meet the *x* axis

B0

[1]

Q8.
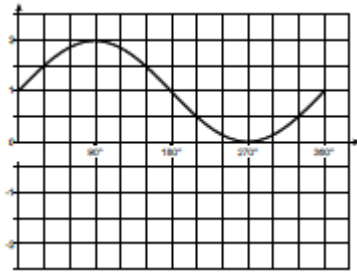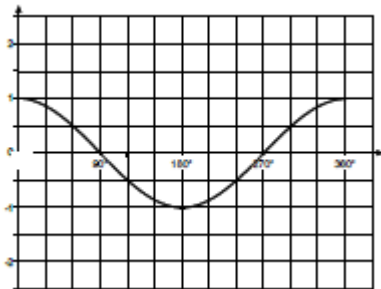60 and 300

Either order

B1

[1]

Q9.
(a)   Fully correct graph

B1

(b)   Fully correct graph

B1

[2]

Q10.

(a)   6

B1

(b)   At least 8 of the 11 given points plotted correctly ($\pm\frac{1}{2}$ square)

M1

Smooth curve passing through (±1 square) all 11 given points
Ignore the point at t = 12 even if incorrect

A1

(c)   Smallest *t* value for d = 9 attempted using their graph
(= approx 2.5)
> *eg horizontal line drawn from (0, 9) to first point of intersection with*
> *their graph or mark on t-axis corresponding to first time*
> *when d = 9*

M1

12.00 + their 2.5 written as a time of day
> *oe*
> ft their *t* value $(\pm\frac{1}{2}$ square)

SC1 M0 but final answer follows through from their graph

A1ft

(d)   Largest *t* value for d = 9 attempted using their graph (= approx 9.5)

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eg horizontal line drawn from (0, 9) to second point of intersection
with their graph or
mark on t-axis corresponding to second time when d = 9

M1

Their 9.5 − 4.25 (= 5.25)
Condone their 9.5 − 4.15

M1Dep

5 h 15 min

ft their t value $(\pm \frac{1}{2}$ square) but do not follow

through from use of 4.15

SC2 M0 but final answer follows through from their graph

A1ft

[8]

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