

## Mark schemes

### Q1.

- (a) 0.6 or  $\frac{3}{5}$   
*oe fraction*  
*Accept 36 m/s per min* B1
- m/s<sup>2</sup>  
*oe*  
*Accept m/s per min only if their acceleration is 36 m/s per min* B1
- (b) Chord from (0, 0) to (50, 30)  
and  
attempt at tangent to curve that is parallel to chord M1
- [11, 14]  
*Must see working on the graph* A1

[4]

### Q2.

- Draws a tangent at 1 second M1
- Their gradient at 1 second  
*Must see a tangent on the graph*  
*ft their tangent*  
*±0.2 tolerance on vertical reading*  
*±0.1 tolerance on horizontal reading* A1ft

[2]

### Q3.

- (a) Smooth curve passing through the points (± 0.5 square)  
(2, 0), (3, 11), (4, 20), (5, 27), (6, 32), (7, 35), (8, 36), (9, 35), (10, 32)  
*Accept a line drawn from (0,0) to (2,0)*  
*Condone no line drawn from (0,0) to (2,0)*  
*B2 At least 7 correct points worked out or plotted (± 0.5 square)*  
*B1 At least 4 correct points worked out or plotted (± 0.5 square)*

B3

### Additional Guidance

Correct points may be implied by curve passing through the points  
Condone curve continued beyond  $t = 10$

(b)  $\frac{\text{their } 35 - \text{their } 11}{7 - 3}$  or  $\frac{24}{4}$

M1

6

*ft their points*

A1ft

[5]

**Q4.**

(a) C

B1

(b) Draws tangent at  $t = 3$

M1

(c) [3.6, 4.4]

*SC1 correct gradient for their tangent*

A1

[3]