

## LC 2018: PAPER 1

### QUESTION 9 (30 MARKS)

$$s = \sqrt{g \times d}$$

#### Question 9 (a)

(i)  $d = 2000 : s = \sqrt{9.8 \times 2000} = 140 \text{ m/s}$

(ii)  $\text{Speed} = \frac{\text{Distance}}{\text{Time}} \Rightarrow \text{Time} = \frac{\text{Distance}}{\text{Speed}}$

$$\text{Time} = \frac{400 \times 1000}{140} = 2857.14 \text{ s} \approx 48 \text{ minutes}$$

#### Question 9 (b)

(i)  $s = \sqrt{g \times d}$

$$s^2 = g \times d$$

$$d = \frac{s^2}{g}$$

(ii)  $s = 55 \text{ m/s} : d = \frac{55^2}{9.8} \approx 309 \text{ m}$

#### MARKING SCHEME NOTES

##### Question 9 (a) (i) [Scale 5B (0, 3, 5)]

3: • Any relevant substitution

Note: Accept correct answer without work

##### Question 9 (a) (ii) [Scale 5C (0, 3, 4, 5)]

3: • use of answer to Part (a)(i)

• correct answer without work

• 400000 written

4: •  $\frac{400\,000}{140}$

##### Question 9 (b) (i) [Scale 5B (0, 3, 5)]

3: • effort to square both sides

##### Question 9 (b) (ii) [Scale 15C (0, 4, 12, 15)]

4: • some substitution into either formula

• correct answer without work

12: •  $d = \frac{55^2}{9.8}$