

# Additional Topic 9 answers

## Topic 9 Wave phenomena (HL)

### 9.1 Simple harmonic motion

- 1 **a** A, right and long; B, right and shorter; C, zero; D, left and shortest  
**b** same as **a**
- 2 **a**  $1.0 \times 10^4 \text{ ms}^{-2}$   
**b**  $21 \text{ ms}^{-1}$   
**c**  $2.5 \times 10^3 \text{ N}$
- 3 **a** 70 kg  
**b** 7.1 m
- 5 **a**  $A = 0.360 \text{ m}$ ,  $f = 1.08 \text{ Hz}$ ,  $T = 0.924 \text{ s}$   
**b** 5.39 J  
**c** 4.74 J, 0.650 J

### 9.3 Interference

- 9 **a**  $4.14 \times 10^{-7} \text{ m}$ ;  $4.25 \times 10^{-7} \text{ m}$   
**b**  $0.462^\circ$
- 10  $3d$
- 12 105 m
- 13 **a** 13.4 km  
**b** 714 km