

Statics answers

- 1 (a) $\sqrt{45}$ 26.6° (b) 11.2 3.76° (c) $\sqrt{13}$
 146°
- 2 70.5°
- 3 10.8° 10.4N
- 4 (a) 17.5° 14.6N (b) 68.1° 3.67N (c) 78.5°
1.09N
- 5 (a) $x = 3.74\text{N}$, $y = 7.28\text{N}$ (b) $x = 2.07\text{N}$, $y = 18.0\text{N}$
(c) $x = 1.82\text{N}$, $y = -7.74\text{N}$ (d) $x = -1.43\text{N}$, $y = 2.87\text{N}$
- 6 $\sqrt{73}\text{N}$ 111°
- 7 $(6\mathbf{i} + 7\mathbf{j})\text{N}$
- 8 $\sqrt{145}\text{N}$ 6.3°
- 9 $(-4\mathbf{i} + \mathbf{j})$
- 10 $(2.83\mathbf{i} + 0.757\mathbf{j})\text{N}$
- 11 $P = 20\text{N}$, $Q = 25\text{N}$, $\theta = 143^\circ$
- 12 3.20N North

Questions B

- 1 (a) $P = 41.6\text{N}$ (b) $P = 17.9\text{N}$
- 2 $a = 1.50\text{ms}^{-2}$
- 3 $T = 17.1\text{N}$
- 4 $T = 52.1\text{N}$
- 5 (a) no (b) no (c) yes

6 (a) 14.9N (b) 23N (c) 54.6N (d) 25.4N
(e) 12.7N

7 $F = 13.3\text{N}$, $a = 0.42\text{ms}^{-2}$, Down plane.

8 $\mu = 0.51$

9 $\mu = 0.231$

10 (a) 9.32N (b) 82.3N (c) 93.4N