

Exercise A

- 1 a 0.48 s
b 2.1 Hz
- 2 a $\frac{\pi}{2}$ radian
b π radian
-

Exercise B

- 1 a +25 mm, changing direction from up to down
b 0, moving down
c -25 mm, changing direction from down to up
d 0, moving up
- 2 a 0.5 Hz
b i -0.25 m s^{-2}
ii 0
iii 0.25 m s^{-2}
- 3 a 0.5 Hz
b -0.32 m s^{-2}
- 4 a -32 mm 0.32 m s^{-2}
b 0, 0
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Exercise C

- 1 a 0.33 Hz
b 0.25 m s^{-2}
- 2 a i 12 mm
ii 0.63 s
b 6.5 mm
- 3 a 2.1 Hz
b 0.057 m
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- 4 a** 3.7 Hz
b i -8.2 mm towards maximum negative displacement
ii -0.7 mm towards maximum positive displacement.
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Exercise D

- 1 a i** 0.33 s
ii 3.1 Hz
b i 0
ii -3.7 m s^{-2}
iii -7.5 m s^{-2}
- 2 a i** 3.0 Hz
ii 0.33 s
b $f_2 < f_1 \therefore m_2 > m_1$
- 3 a i** 70 mm
ii 21 N m^{-1}
b ii 0.53 s
- 4 a i** 1.25 N
ii 2.5 m s^{-2}
b ii 1.1 Hz, +47 mm
- 5 a i** 2.0 s
ii 1.0 s
b 5.0 s
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Exercise E

- 1 a i** 1.50 s
ii 0.56 m
iii 0.029 J
b See Figure 2
- 2 a i** 60 N m^{-1}
ii 0.54 s
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- b** i 75 mJ
ii 75 mJ
iii 0.50 ms^{-1}
- 3 a** i light
ii heavy
- 4 b** 82 mm
d 44 mm
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Exercise F

2.

- a** 27 Nm^{-1}
b 1.7 Hz

4 b 2.8 ms^{-1}
