WorkBook Answers

Chapt 15

Q1 a) No change
b) decrease by a factor of 8

Q2 half of original
Hour times original

Q3 11.2 kg/m3

Q4 Unchanged

Q5 A=B=C

Q6 D>F>E

Q7 gauge pressure reduced by factor of 4

Q8 smaller

Q9 FA>FB: FA=FB

Q10 No change

Q11 PA=PB

Q12 Final pressure is less

Q13 Space has a pressure of 0.5 atm

Q14 A>C>B

Q15 all the same

Q16 FA=FC>FB

Q17 Less

Q18 A rides higher

Q19 2>1>3

Q20 3>1>2

Q21 1>2=3>4

Q22 in windows out chimney

Q23 2mm: 0.25 mm

Q24 4000N: 4 mm

Q25 Same

Q26 B

Chapt 14

Q2 Symmmetric square wave
Asymmetric triangular wave

Q3 yes, no, 4.0 s, 0.25 Hz
Velocity graph is slope of position graph

Q4 6.0 s Position graph will have slope = velocity

Q5 No Derivatives of sinusoidal fnctions are also sinusoidal
Derivative of parabolic function is a linear function
d) 0, 2, 4 s: 0 s: minimum:
e) 1, 3, 5 s: 0 : maximum
f) 1.5, 3.5 s: 0
g) signs are opposite

Q6 0, 4 s: 2, 6 s: 1, 3, 5, 7 s

Q7 1800*: 31.4 rad: 2.0 Hz: 12.6 rad/s: yes

Q8 a) t=0, x=+A t=T/4, x=0
b) t=0, x=0 t=T/4, x=-A
c) t=0, x=-A t=T/4, x=0
d) t=0, x=0 t=T/4, x=+A

Q10 a) –60°
b) –120°, 0, 120°

Q11 a) 210°
b) 150°, 270°, 30°

Q12 a) 20 cm
b) PE=TE 14, 26 cm
c) ~ 7J
e) 12, 28 cm

Q13 28.3 cm
Q14 28.3 cm/s
Q15 a) Periodic turning points at 1 and 7 cm
b) No PE is not quadratic
c) 3 cm

Q17 2.83 s: 1 s: 2 s

Q18 a) 3.14 rad/s, 10 cm, 60°
b) 3.14 rad/s, 3.18 cm, -30°
Q19 b) no c) no d) signs of x and a are opposite, e)yes, object slowing down as it approaches a turning point

Q20 a)-60° d) starting position is the same but they are moving in opposite directions.