

Multiple Choice Answers

Q9: C
Q10: D

Multiple Choice Answers

Q9: D
Q10: B
Q12: D

Multiple Choice Answers

Q10: D
Q11: B

Multiple Choice Answers

Q9: B

Multiple Choice Answers

Q10: C

Multiple Choice Answers

Q9: C

4(a)	<u>sum / total</u> momentum (of a system of bodies) is constant or <u>sum / total</u> momentum before = <u>sum / total</u> momentum after
	for an isolated system / no (resultant) <u>external</u> force
4(b)(i)	$p = mv$ or 4.0×6.0 or 2.0×3.0
	$(4.0 \times 6.0) + (2.0 \times 3.0) = 6.0 \times v$
	so $v = 5.0 \text{ m s}^{-1}$
4(b)(ii)	KE before = $(0.5 \times 4.0 \times 6.0^2) + (0.5 \times 2.0 \times 3.0^2)$ = 81 J
	KE after = $(0.5 \times 6.0 \times 5.0^2)$ = 75 J
	percentage transferred = $[(81 - 75) / 81] \times 100$
	= 7%

7(a)	nucleon number of Q = 226 <u>and</u> proton number of R = 86
7(b)	$4(u) \times 1.5 \times 10^7$ or $222(u) \times v$
	$v = 4(u) \times 1.5 \times 10^7 / 222(u)$
	= $2.7 \times 10^5 \text{ m s}^{-1}$
7(c)	Any three from: • momentum • charge • nucleon number • neutron number • proton number