

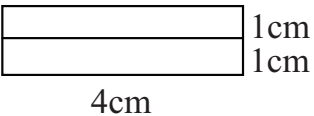
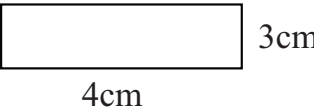
June 2010

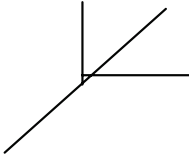
1380/4H				
Question	Working	Answer	Mark	Notes
1	120×1.5 8×1.5 420×1.5 180×1.5	180 12 630 270	3	M1 for $\times 6 \div 4$ or $\frac{6}{4}$ or $\div 4 \times 6$ oe $(120+60)$ or 1.5 seen or sight of any one of the four correct answers A1 for 2 or more correct answers A1 for 4 correct answers
2	(a)	Info plotted at (6.1, 32)	1	B1 for a correct plot $\pm 2\text{mm}$
	(b)	positive	1	B1 for positive (correlation)
	(c)	6.6 to 7.6	2	M1 for single straight line segment with positive gradient that could be used as a line of best fit or an indication on the diagram from 40 on the umbrella axis. A1 for an answer in the range 6.6 to 7.6 inclusive.

Question	Working	Answer	Mark	Notes
3 (a)	1.25×620	775	2	M1 for 1.25×620 oe A1 cao
(b)	$50 \div 1.25 = 40$ $42 - 40$ or $42 \times 1.25 = 52.5$ $52.5 - 50 = 2.50$	2	3	M1 for $50 \div 1.25 (=40)$ oe M1 (dep) for $42 - "40"$ or $"40" - 42$ A1 cao for £2 OR M1 for $42 \times 1.25 (= 52.5)$ oe M1 (dep) for $"52.5" - 50$ or $50 - "52.5"$ A1 cao for £2 [A0 for €2.5(0) or £2.5(0) without any working] SC: Award B2 for -£2
4 (a)		-2, 4, 7	2	B2 for a fully correct table (B1 for 1 or 2 correct entries)
(b)		Straight line from (-2, -2) to (2, 10)	2	B2 for correct straight line from (-2, -2) to (2, 10) (B1 ft for at least 4 correctly plotted points OR a single straight line passing through (0, 4) OR for a single line of gradient 3)

Question	Working	Answer	Mark	Notes
5 (i)	180 – 68	112	3	B1 cao
(ii)				B1 for ‘alternate angles’ or Z angles or ‘corresponding angles’ or F angles or B1 for ‘(angles on a straight) line = 180’ Alternative: B1 for ‘allied angles’ or ‘co-interior angles’ or B1 for ‘(vertically) opposite angles’
6 (a)	$\frac{2}{3.95}$	0.5063(29113...)	2	B2 for 0.5063 or better. (B1 for 0.5 or 0.50 or 0.506 or 0.51 or 3.95 or the fraction $\frac{40}{79}$ seen)
(b)		0.51	1	B1 ft for 0.51 from their answer to part (a) which is written to two or more decimal places.
7	$\pi \times 12$	37.7	2	M1 for $\pi \times 12$ accept π as $\frac{22}{7}$ or 3.1 or better A1 for an answer in the range 37.6 to 37.8

Question	Working	Answer	Mark	Notes
8	$x = 1$ gives 11 $x = 2$ gives 28 $x = 1.5$, gives 18.(375) $x = 1.6$, gives 20.(096) $x = 1.7$, gives 21.(913) $x = 1.8$, gives 23.(832) $x = 1.9$, gives 25.(859) $x = 1.85$, gives 24.8(316..) $x = 1.86$, gives 25.(03..) $x = 1.87$, gives 25.2(3..) $x = 1.88$, gives 25.4(4..) $x = 1.89$, gives 25.6(5..)	1.9	4	B2 for a trial $1.8 \leq x \leq 1.9$ evaluated (B1 for a trial $1 \leq x \leq 2$ evaluated) B1 for a different trial $1.85 \leq x < 1.9$ evaluated B1 (dep on at least one previous B1) for 1.9 Accept trials correct to the nearest whole number (rounded or truncated) if the value of x is to 1dp but correct to 1dp (rounded or truncated) if the value of x is to 2dp. NB: no working scores no marks even if answer is correct.
9	$\frac{84}{350} \times 100$	24	2	M1 for $\frac{84}{350} \times 100$ A1 cao
10	(a) $1 - (0.15 + 0.3 + 0.35) =$	0.20	2	M1 for $1 - (0.15 + 0.3 + 0.35)$ A1 for 0.2 oe
	(b) 0.30×500	150	2	M1 for 0.30×500 A1 cao NB: $\frac{150}{500}$ etc. gets M1 A0 but "150 out of 500" gets M1 A1

Question	Working	Answer	Mark	Notes
11 (a)		Base angles of an isosceles triangle are equal	1	B1 mentions isosceles (triangle) or two sides the same or base angles equal . Accept equivalent reasons. Do not accept incorrect statements.
(b)	$2x = 40$	20	2	M1 for an attempt to move x to LHS or -10 to RHS eg $-x$ each side or $+10$ each side or sight of $2x$ or 40 OR to move $3x$ or $+30$ or sight of $-2x$ or -40 A1 cao
12 (a)	$0.5 \times 6 \times 14$	42	2	M1 for $0.5 \times 6 \times 14$ oe A1 cao
(b)	$\sqrt{6^2 + 14^2} = \sqrt{232}$	15.23	3	M1 for $6^2 + 14^2$ or $36 + 196$ or 232 M1 for $\sqrt{36 + 196}$ or $\sqrt{232}$ A1 for answer in the range 15.2 to 15.3
13 (a)		Plan shown as two rectangles 1cm by 4cm	2	B2 cao (B1 for a rectangle 4 cm x 1 cm or a rectangle 4 cm x 2 cm. Could be attached to other rectangles.) Do not accept rectangles with additional external lines.
(b)			2	B2 cao (B1 for a rectangle with one correct dimension) Do not accept rectangles with additional external lines. NB: any orientation possible; ignore internal lines.

Question	Working	Answer	Mark	Notes
14	$(20 \times 3 + 60 \times 5 + 100 \times 12 + 140 \times 7 + 180 \times 3) \div 30 =$ $(60 + 300 + 1200 + 980 + 540) \div 30 =$ $= 3080 \div 30$ Alternative: $(20.5 \times 3 + 60.5 \times 5 + 100.5 \times 12 + 140.5 \times 7 + 180.5 \times 3) \div 30$ $= 3080 \div 30$	102.7 103.2	4	M1 for $f \times h$ for at least 3 consistent values of h in or at either end of intervals. M1 (dep) for use of all correct mid-interval values (accept 20-20.5 etc) M1 (dep on at least M1 scored) for $\sum fh \div 30$ A1 for 102.6 - 103.2
15	(a)	-3, -2, -1, 0, 1	2	B2 for all 5 correct values; ignore repeats, any order. (-1 for each omission or additional value)
	(b)	$x > 4.5$	2	M1 for an attempt to move x to LHS or -2 to RHS eg $-x$ each side or $+2$ each side or sight of $2x$ or 9 or $2x > 9$ or sight of $2x$ on LHS of (in)equality or 9 on RHS of (in)equality. eg. $3x - x > 7 + 2$ A1 oe Allow $x > 4\frac{1}{2}$, $x > \frac{9}{2}$ [SC: B1 for $x = 4.5$, $x < 4.5$ if M0 scored]
16			2	B2 for correct locus within guidelines (overlay) (B1 for a line drawn parallel to either given line OR a line passing through the angle outside of the guidelines OR a line drawn within the guidelines but not passing through angle)

Question	Working	Answer	Mark	Notes
17	$r^2 = \frac{A}{3}$	$A = 3r^2$	2	M1 for an attempt to square both sides $r^2 = \frac{A}{3}$ or an attempt to multiply both sides by $\sqrt{3}$ A1 cao
18 (a)		1.55×10^4	1	B1 cao
(b)		0.00248	1	B1 cao
(c)	$24500 \div 0.000125 = 196000000$	1.96×10^8	2	B2 cao (B1 for 196000000 or $1.96 \times 10^4 \times 10^4$ oe or 1.96×10^n or digits 196×10^n where n is a number other than 8, or absent.)
19 (a)		$(x-2)(x-5)$	2	M1 for $(x \pm 2)(x \pm 5)$ A1 for $(x-2)(x-5)$
(b)		$x = 2, x = 5$	1	B1 cao or ft from (a)
20	$\cos 58^\circ = \frac{AB}{16}$ $AB = 16 \times \cos 58^\circ = 8.4787$	8.48	3	M1 for $\cos 58^\circ = \frac{AB}{16}$ M1 (dep) for $16 \times \cos 58^\circ$ A1 for 8.47- 8.48 [SC:M2 A0 for 1.9-1.91 [RAD] or 9.8-9.81 [GRAD]]

Question	Working	Answer	Mark	Notes
21 (a)		28.5	1	B1 for 28.5 or 2850 cm or 28.499 or 28.49... or 28.49 recurring oe
(b)	$2 \times (147.5 + 28.5)$	352	3	B1 for upper bound of length = 147.5 or 14750 cm or 147.49 recurring oe M1 for $2 \times$ ("upper bound width" + "upper bound length") where these are not the given values. A1 cao 351.999-352
22 (a)	p^{5+4}	p^9	1	B1 (accept p^{5+4})
(b)	q^{5-2}	q^3	1	B1 (accept q^{5-2})
(c)		$2u$	2	B2 (accept $2t^0u$, $2t^0u^1$ oe) (B1 for 2 correct terms from 2, t^0 and u oe eg u^1)
(d)		$3wy^3$	2	B2 cao (B1 for 2 correct terms from 3, w and y^3 oe) NB: accept w^1 for w .
(e)		$x^{-2} x^0 x^{\frac{1}{2}} x x^2$	2	B2 cao (B1 for any 4 in relative correct order, or all correct but in reverse order)

Question	Working	Answer	Mark	Notes
23	$50 : 18 = 25 : 9$ Ratio of length = $5 : 3$ Ratio of volume = $125 : 27$ $500 \times \frac{27}{125}$	108	4	M1 for ratio of length = $\sqrt{50} : \sqrt{18}$ or $\sqrt{25} : \sqrt{9}$ (or $5 : 3$ or $3 : 5$ seen) or 1.66-1.67 or 0.6 M1 for ratio of volume (mass) = " $5^3 : 3^3$ " or $25^{\frac{3}{2}} : 9^{\frac{3}{2}}$ or 4.62-4.63 or 0.216 M1 (dep on at least M1) for $500 \times \frac{9^{\frac{3}{2}}}{25^{\frac{3}{2}}}$ or $500 \div "4.62"$ or $500 \div "4.63"$ or $500 \times "0.216"$ A1 cao [NB: ratios do not need to be presented as ratios as long as the relationship is clear]
24 (a)	Explanation: Each member of the population has an equal chance of selection		1	B1 for explanation
(b)	Description: Eg. number each stamp and use random select on calculator.		1	B1 for an acceptable description
(c)	$50 \times \frac{95}{662} = 7.175\dots$	7	2	M1 for $50 \times \frac{95}{662}$ or 7.1, 7.2, 7.17, 7.18, 7.175... A1 Accept 7 or 7.0

Question	Working	Answer	Mark	Notes
25 (a)		12, 6	2	M1 for frequency density calculation (implied by one answer), or $1\text{cm}^2=2$ (trains), or $fd=0.5$ or $8\text{cm}^2=16$ A1 both 12 and 6
(b)	Bar of height 5cm (5-10) Bar of height 1cm (30-50)	Height 5cm Height 1cm	2	M1 for frequency density calculation (implied by one correct bar) or $1\text{cm}^2=2$ (trains) or $fd=0.5$ A1 for bar of height 5cm (5 to 10) AND for bar of height 1 cm (30 to 50) $8\text{cm}^2=16$
26	$\frac{40}{360} \times \pi \times 8^2 - \frac{1}{2} \times 8^2 \times \sin 40^\circ$ $= 22.34\dots - 20.569\dots$ OR $\frac{40}{360} \times \pi \times 8^2 -$ $8 \times \sin 20^\circ \times 8 \times \cos 20^\circ$ $= 22.34\dots - 20.569\dots$	1.77	5	M1 for $\frac{40}{360}$ oe seen or 0.11 seen or $\div 9$ M1 for $\frac{40}{360} \times \pi \times 8^2$ oe or sight of 22.3-22.35 M1 for $\frac{1}{2} \times 8^2 \times \sin 40^\circ$ or $8 \times \sin 20 \times 8 \times \cos 20$ or sight of 20.56-20.57 M1 (dep on at least one M1 scored) for the intention to find the difference between the area of triangle <i>OPS</i> and the area of sector <i>OPRS</i> A1 for 1.74 -1.78 [B3: RAD: $\pm 1.50(340\dots)$ or GRAD: 3.53(108...)]
27 (a)		$y = f(x - 5)$	1	B1 cao
(b)		(4, 3)	2	B2 cao (B1 for one coord. correct (in correct position) or (3,4).)