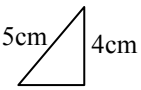
Qu	Give one mark for each •	Illustration for awarding mark
1a	**ans : 3, 7, 2, 3, 3, 3 / 3, 10, 12, 15, 18, 21 2 marks**	
	•[1] correct frequencies	•[1] 3, 7, 2, 3, 3, 3
	•[2] correct cumulative frequencies	•[2] 3, 10, 12, 15, 18, 21
b	**ans: 3/7 2 marks**	
	•[1] correct numerator	•[1] 9/……
	•[2] simplified fraction	•[2] 3/7
2	**ans: $6\sqrt{3}$ 3 marks**	
	•[1] knows to simplify surds	•[1] evidence of changing surds to same name
	•[2] simplifies surds	•[2] $\sqrt{27} = 3\sqrt{3}$ and $\sqrt{48} = 4\sqrt{3}$
	•[3] simplifies to answer	•[3] $6\sqrt{3}$
3	**ans: $y = 4x + 3$ 3 marks**	
	•[1] finds gradient of line	•[1] $m = 4$
	•[2] states y-intercept	•[2] $c = 3$
	•[3] states equation of line	•[3] $y = 4x + 3$
4	**ans: $b^{3/2} + 1$ 3 marks**	
	•[1] starts to multiply out brackets	•[1] $b^{3/2}$.....
	•[2] completes multiplying brackets	•[2] …… b^o
	•[3] knows $b^o = 1$	•[3] $b^{3/2} + 1$
5	**ans: $x = -2$ 2 marks**	
	•[1] factorises quadratic equation	•[1] $(x - 5)(x + 1) = 0$
	•[2] finds midpoint of zeros	•[2] $x = -2$
6a (i)	**ans : $(7 - 5a)(7 + 5a)$ 1 mark**	
	•[1] recognises difference of two squares	•[1] $(7 - 5a)(7 + 5a)$
(ii)	**ans: $(2d - 3)(d + 5)$ 2 marks**	
	•[1] one factor correct	•[1] $(2d - 3)$…..
	•[2] second factor correct	•[2] ……..$(d + 5)$
b	**ans: $23 - 4x$ 2 marks**	
	•[1] multiplies out bracket	•[1] …..$-10x + 15$…..
	•[2] collects like terms	•[2] $23 - 4x$
7	**ans : $(4x - 5)$ 4 marks**	
	•[1] establishes perimeter of square	•[1] $4(3x - 2)$
	•[2] establishes formula for perimeter of rect.	•[2] $2(2x + 1) + 2l$
	•[3] equates perimeters to form equation	•[3] $4x + 2 + 2l = 4(3x - 2)$
	•[4] expression for l	•[4] $l = 4x - 5$

Qu	Give one mark for each •	Illustration for awarding mark
8	**ans: £60 3 marks** ●[1] knows to make selling price equal to £75 ●[2] finds 1% ●[3] finds 100% NB – fractions could also by used.	 ●[1] 125% = £75 ●[2] 1% = 75/125…….. ●[3] 100% = 75/125 × 100 = £60
9	**ans:** $\frac{2k+20}{k(k+4)}$ **3 marks** ●[1] makes new denominator ●[2] finds numerator ●[3] simplifies numerator	 ●[1] $k(k+4)$ (or equivalent) ●[2] $5(k+4)-3k = 5k+20-3k$ ●[3] $2k+20$
		Total 30 marks

Intermediate 2 Paper 2 ~ 2006/07 Units 1, 2 and 3 Marking Scheme

Qu	Give one mark for each •	Illustration for awarding mark
1a	**ans : 180cm^3 3 marks**	
	•^{1} uses correct radius •^{2} substitutes into appropriate formula •^{3} answer	•^{1} radius = 3·5cm (can be in formula) •^{2} $V = \frac{4}{3} \times \pi \times 3 \cdot 5^3$ …… •^{3} 180cm^3
b	**ans: 92cm^3 3 marks**	
	•^{1} uses correct multiplier •^{2} finds amount after 1 minute •^{3} finds amount after 2 and 3 minutes	•^{1} $0 \cdot 8^3$ •^{2} 144cm^3 •^{3} 115·2cm^3; 92cm^3
c	**ans : 2·8cm 3 marks**	
	•^{1} equates volume to formula •^{2} knows how to find r^3 •^{3} takes cube root to answer	•^{1} $92 = \frac{4}{3} \times \pi \times r^3$ •^{2} $r^3 = 92 \div (\frac{4}{3}\pi)$ •^{3} 2·8cm
2a	**ans : diagram drawn 3 marks**	
	•^{1} stem correct •^{2} ordered leaf •^{3} key and n shown	•^{1} 1 | 3 5 7 8 •^{2} 2 | 0 1 1 2 3 4 8 8 n = 20 •^{3} 3 | 0 1 2 2 6 8 4 | 2 3 2 | 1 represents 21
b	**ans: 20·5; 26; 32 3 marks**	
	•^{1} identifies lower quartile •^{2} identifies median •^{3} identifies upper quartile	•^{1} $Q_1 = 20 \cdot 5$ •^{2} $Q_2 = 26$ •^{3} $Q_3 = 32$
3	**ans : 7·31 4 marks**	
	•^{1} knows to use cosine rule •^{2} substitutes into formula correctly •^{3} evaluates and takes square root •^{4} rounds correctly	•^{1} evidence •^{2} $6^2 + 8^2 - (2 \times 6 \times 8 \times \cos 61^o)$ •^{3} 7·31151…….. •^{4} 7·31m
4	**ans : 0·4; -3·9 4 marks**	
	•^{1} states values of a, b and c •^{2} finds value of $b^2 - 4ac$ •^{3} substitutes into formula and evaluates •^{4} correct rounding	•^{1} $a = 2$; $b = 7$; $c = -3$ •^{2} 73 (must be positive value) •^{3} $x = \frac{-7+\sqrt{73}}{4} = 0 \cdot 386...$ or $x \frac{-7-\sqrt{73}}{4} = -3.886...$ •^{4} 0·4; -3·9

Qu	Give one mark for each •	Illustration for awarding mark
5a	**ans : 6cm 4 marks**	
	•[1] knows to use Pythagoras	•[1] evidence 
	•[2] assembles facts in right-angled triangle	•[2]
	•[3] finds third side	•[3] $\sqrt{(5^2 - 4^2)} = 3\text{cm}$
	•[4] states length of side of triangle	•[4] 6cm
b	**ans: 15·6cm^2 3 marks**	
	•[1] knows that angle is 60^o	•[1] evidence – substituted in formula
	•[2] uses appropriate formula for area	•[2] $0{\cdot}5 \times 6 \times 6 \times \sin 60^o$
	•[3] answer	•[3] 15·6cm^2
6	**ans : $b = 2A/a\sin C$ 2 marks**	
	•[1] multiples both sides of formula	•[1] $2A = ab\sin C$
	•[2] completes rearranging	•[2] $b = 2A/a\sin C$
7	**ans : 72^o 3 marks**	
	•[1] uses appropriate ratios	•[1] $x/360 = 15/\pi D$
	•[2] substitutes and re-arranges	•[2] $x/360 = 15/(\pi \times 24)$; $x = (15 \times 360)/ 24\pi$
	•[3] answer	•[3] 72^o
8	**ans : 110^o 5 marks**	
	•[1] knows to use sine rule	•[1] evidence
	•[2] knows to find angle PRQ	•[2] $5{\cdot}5/\sin R = 4{\cdot}5/\sin 31^o$
	•[3] rearranges to find value of sinR	•[3] $\sin R = 0{\cdot}629\ldots\ldots$
	•[4] knows to take inverse and finds angle	•[4] $R = \sin^{-1}(0{\cdot}629\ldots) = 39^o$
	•[5] finds third angle	•[5] $\angle$ PQR = 180 – (31 + 39) = 110^o
9a	**ans : 61·5 1 marks**	
	•[1] answer	•[1] 369 ÷ 6 = 61.5
b	•[1] finds Σx^2	•[1] $\Sigma x^2 = 23475$
	•[2] substitutes into appropriate formula	•[2] $s = \sqrt{\frac{23475 - \frac{61{\cdot}5^2}{6}}{6 - 1}}$
	•[3] answer	•[3] $s = \sqrt{156{\cdot}3} = 12{\cdot}5$
10a	**ans : $y = 9 - (x - 2)^2$ 3 marks**	
	•[1] substitutes into general equation	•[1] $y = k(x - 2)^2 + 9$
	•[2] substitutes 3rd point to find k	•[2] $5 = k(0 - 2)^2 + 9$; $k = -1$
	•[3] states equation of parabola	•[3] $y = 9 - (x - 2)^2$ (or equivalent)
b	**ans: $x = 2$ 1 mark**	
	•[1] states equation of axis of symmetry	•[1] $x = 2$ (no marks awarded for 2 on its own)
c	**ans : (5, 0) 2 marks**	
	•[1] valid method used	•[1] evidence
	•[2] answer	•[2] (5, 0)
		Total 50 marks