

Knightswood Secondary School Credit Past Paper question Answers

How to use the answers

The page number from the question sheets

Page 1			
15	Simultaneous Equations	25 tiles Using pattern 2 $\rightarrow 2a + b = -3$ Using pattern 3 $\rightarrow 3a + b = -5$ A = -2; b = 1	$5 = 2(2)^2 + a(2) + b$ $13 = 2(3)^2 + a(3) + b$

The Mathematics topic that the question is mainly on

Answers

Some hints on how do the question

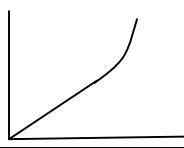
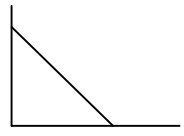
What to do if you find a mistake?

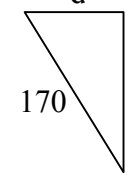
If you find an answer that is wrong, please do tell us. It is *very likely* that there are some mistakes in this answer booklet! Letting us know of any mistakes will help future pupils using these sheets. You can tell your Class teacher, Mr Farmer or send an email to NFarmer@Knightswood-sec.glasgow.sch.uk

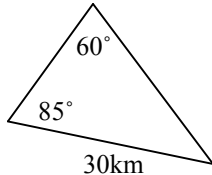
I just can't get a question!

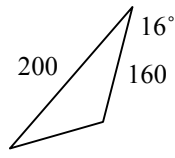
Look at the hints column, if this does not help, see a Maths teacher!

Page 1			
15	Simultaneous Equations	25 tiles Using pattern 2 $\rightarrow 2a + b = -3$ Using pattern 3 $\rightarrow 3a + b = -5$ $A = -2; b = 1$	$5 = 2(2)^2 + a(2) + b$ $13 = 2(3)^2 + a(3) + b$
1	Equations	$A = -10$	$3a = a - 20$ $2a = -20$
2	Compound Interest Percentages	14 million	Year 1 = 12, 600, 000 Year 2 = 13, 230, 000 Year 3 = 13, 891, 500
3	Trigonometry SOHCAHTOA	$x = 26.57^\circ$ Permission should be granted as 26.57° is less than 27° and more than 23°	$\tan x = 1.5/3$
Page 2			
4	Corresponding Angles	$B = 108^\circ$	Look for 'f shape', then $b = 180 - 72$
5	Converse of Pythagoras	Triangle is Right Angled	Third side is $6 - 2.5 - 2 = 1.5\text{m}$ $(2.5)^2 = 6.25$ $(1.5)^2 + (2)^2 = 6.25$
13	Bearings and Cosine Rule	$AB = 94.78\text{km}$	$AB^2 = (100)^2 + (70)^2 - 2(100)(70)\cos 65$
14	Area, Volume	Volume = 9.3m^3	Area (rectangle) = 1.8 Area (triangle) = 0.35 Total Area = 4.65 Volume = $Ah = 4.65 \times 2$
Page 3			
16	Algebra Quadratics	Length = $w + 2$ Width = 6m Extension is 8 by 6	Area = length x breadth $48 = (w + 2)w$ Rearrange to: $w^2 + 2w - 48 = 0$ Factorise to: $(w - 6)(w + 8)$
17	Trigonometric Equations	$x = 203.6^\circ, 336.4^\circ$	$\sin x = -2/5$ [$x = \sin^{-1}(2/5) = 23.6^\circ$] But 'sin negative' so solutions in 3 rd and 4 th quadrants of 'AllSinTanCos'
18	Algebraic Fractions Surds	$\frac{2x + 2}{x^2}$ $\frac{3\sqrt{5}}{5}$	Make denominator equal, Then add numerators $\frac{3}{x} \times \frac{x}{x} = \frac{3x}{x^2}$ Multiply by: $\frac{\sqrt{5}}{\sqrt{5}}$

Page 4			
8	Problem solving	Dipstick 2 	1 st : Slanting sides mean greater volume in base of jar. Thus fills up slower and ¼ of volume less high on dipstick. 2 nd : Vertical sides mean straight line, curved top part means tank fills up quicker at top.
9	Quadratics: - expanding brackets - factorisation	$2y^2 - 12y + 9$ $(2x - 1)(x + 4)$	
10	Area and Arc length of a sector	Arc Length = 26.7m	Calculate angle using area info: $Area = \frac{x}{360} \pi r^2$ $200 = \frac{x}{360} \times 3.14 \times (15)^2$ Then use angle to calculate arc.
Page 5			
4	Using Formula	Cost = £642 $C = 555 + 29(t - 14)$	Cost = $555 + 29 \times (3^*)$ * 3 additional nights
5	Graphs and Equations	Straight line going through (0,240), (60,120) & (120,0)  $V = -20t + 240$	Remember that equation of a straight line is in the form: $Y = mx + c$ where - m is the gradient $(y_2 - y_1 / x_2 - x_1)$ - c is the y-intercept
6	Patterns $10^2 = (10 \times 11 \times 21) / 6$ $n^2 = (n(n+1)(2n+1)) / 6$	Look for pattern in 1 st & 2 nd column of numbers, ie going up in 1, so 'n' and 'n+1', then last column goes up in 2's => 2n+1
15	Quadratics: - expanding brackets - factorisation	$15a^2 - 2ab - 8b^2$ $(2x - 3)(x + 4)$	
16	Trigonometric Equations	Oct = 12.5 million gallons Council need's to consider rationing, as min value is is 0.05 below threshold	$V = 1 + 0.5\cos(30 \times 10)$ Min value of $\cos 30t = -1$ Min value of $V = 1 + 0.5(-1) = 0.5$
17	Indices and Surds	$f(3/2) = 8$ $\sqrt{32} + \sqrt{8} = 6\sqrt{2}$	$4^{3/2} = (\sqrt{4})^3 = (2)^3$ $\sqrt{32} = \sqrt{16}\sqrt{2} = 4\sqrt{2}$ $\sqrt{8} = \sqrt{4}\sqrt{2} = 2\sqrt{2}$

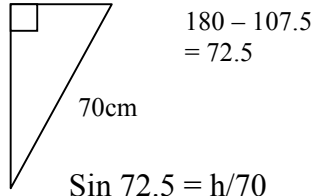
Page 6			
18	Variation	$1.5 \times 6 = 9$ $2 \times 4.5 = 9$ $2.5 \times 3.6 = 9$	$y = \frac{9}{x}$ $y \propto \frac{1}{x}; xy = k$
19	Algebra and Quadratics	Pipes = 715 Proof..... Yes, it is possible, for 975 pipes, need 25 on top row.	Put 'a' in for top row, '2a' for bottom row. Multiply out. $3a^2 + 3a - 1950 = 0$ $(a + 26)(a - 25), a = -26 \text{ or } 25$
Page 7			
15	Simultaneous Equations	$3x + 4y = 65; 5x + 7y = 112$ Iron = 7, Lead = 11	
16	Changing the subject	$R = \sqrt{\frac{m + 3}{t}}$	$M + 3 = R^2t$
17	Trigonometry graphs	$Y = 3\cos 2x$	a = amplitude, b affects the period
1	Equations	$X = -4$	$5 - 2 - 6x = 27; 6x = -24$
2	Scientific Notation	4.73×10^{20}	50million = 50,000,000
3	Formula	Cost (14kg parcel) = £16.50 $\text{Cost} = 13.50 + 0.75(w-10)$	$\text{Cost} = 13.50 + 0.75(14-10)$
Page 8			
4	Similar Shapes	$CD = 5.6$	Scale Factor = $\frac{3}{4.5} = \frac{2}{3}$ or 0.666
5	Problem Solving	Sketch going through: x-axis - (-6, 0) & (6,0) y-axis - (0,4) & (0, -4)	
13	Quadratic Formula	$1.6 \text{ or } -3.6$	$A = 1, b = 2, c = -6$ $\frac{-2 \pm \sqrt{28}}{2}$
14	Circle Geometry & Pythagoras	$AB = 186.9\text{m}$	 <p> $170 - 28 = 142$ Then use Pythagoras to get d, then double. </p>

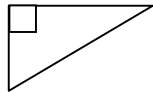
Page 9			
11	Surds, Indices and Factorising	$f(12) = 6\sqrt{3}$ y^7 $(3a - 5)(3a + 5)$	$\sqrt{12} = \sqrt{4\sqrt{3}} = 2\sqrt{3}$ Divide base, subtract powers
12	Bearings and Sine Rule	$x = 34.5\text{km}$	 <p>A triangle with angles 60° and 85°, and a side of 30km.</p>
6	Area and Volume	£2, 600, 000	<p>Area (trapezium) = $0.5(a+b)h$ Where a & b are the parallel sides, h height Area (existing) = 95m^2 Area (new) = 160m^2 Area (extra to be removed) = 65m^2 Volume (removed) = $520,000\text{m}^3$</p>
Page 10			
8	Equation of line	$P = 2t + 3$ (letters must not be x & y)	y -intercept = 3, gradient = 2
9	Area, Area of triangle (sine) formula	Not enough paint by 1.66 lit.	<p>Area (rectangle) = 88.58m^2 Area (triangle) = 20.73m^2 $109.31 \div 8 = 13.66\text{Lit}$ needed</p>
10	Factorising quadratic, solving equations	$(3x + 1)(x - 2)$ $m = 3/8$ or 0.375 $y = 0$ or 6	$5m = 3 - 3m$; $8m = 3$ $y(6 - y) = 0$
Page 11			
11	Cosine Rule	$PR = 237.66$	$PR^2 = 140^2 + 120^2 - 2(140)(120)\text{Cos}132$
12	Percentage change	$2000 = 62.27\text{pence}$	<p>Increase = 1.4p, $\% \text{incr} = 1.4 \div 54.9 \times 100$ $97 = 57.74$; $98 = 59.21$; $99 = 60.72$</p>
6	Variation	Area = 1.52×10^8	<p>$A_1 = kd^2$ $A_2 = k(2d)^2$ if diameter $\times 2$ $A_2 = 4kd^2$, therefore $2 \times \text{diameter} = 4 \times \text{Area}$</p>
7		CD – filled fuel tank BC, DE on motorway, as less fuel used	

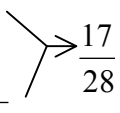
Page 12			
15	Sine Rule, SOHCAHTOA	AT = 49.5 Height = 46.2 + 1.5 = 47.7	Get AT using Sine rule Angle ATB = 5°; TBA = 64° The use triangle TA... and SOHCAHTOA, use Sine ratio.
16	Indices Surds Changing the subject	$b^1 + 1$ $f(2) = \frac{3\sqrt{2}}{2}$ $T = \frac{Q - p^2}{3}$	Rationalise surd (see qu18, page3) $3T = Q - p^2$
1	Inequalities	$x \leq 6$	
2	Volume	Volume = 21m ³	Area (rectangle) = 1m ² Area (triangle) = 6m ² Volume - Ah
3	Arc length	x = 66.88°	$Arclength = \frac{x}{360} \pi r^2$
Page 13			
12	Bearings Cosine Rule	x = 219.0km	
13	Trigonometric graphs	a = 2, k = 3	k is amplitude, a affects period
1	Arc Length	x = 83.73	see formula in qu3 page 12
Page 14			
2	Volume	Volume = 650m ³ (2sf) Width = 4.17m	Area (rectangle) = 35m ² Area (semicircle) = 19.23m ² Volume = 12 (3w + w) 200 = 48w
10	Variation	L = k D√S k = 1/165 Litres used = 42	Substitute L=30; D=550; S=81
11	Expanding brackets Solving Quadratics Equations	$6a^2 - 17ab + 5b^2$ x = -0.5, 5 x = 26	$(2x + 1)(x - 5)$ $3x - 2x - 2 = 24$

Page 15												
8	Functions, Factorising, simplification	$h(-2) = -42$ $2x(x - 3)$ $\frac{2x}{x + 3}$	$h(-2) = 15(-2) - 3(-2)^2$ $\frac{2x(x - 3)}{(x - 3)(x + 3)}$									
9	Patterns	$\dots + 7^3 = \frac{7^2 \times 8^2}{4}$ $\dots + n^3 = \frac{n^2 \times (n+1)^2}{4}$ $8^3 \dots n^3 = \frac{n^2(n+1)^2}{4} - \frac{7^2 \times 8^2}{4}$										
3	Formula	Apex is better by 1 day for £170.	$C_E = 15d$ $C_A = 10d + 50$ For £170, Euro 11.3days, Apex 12 days.									
4	Area of a triangle (Sine rule)	Area = 7500.5m ²	Top triangle = 2550.0 Bottom triangle = 4950.5									
Page 16												
17	Factorising Quadratics, fractions	$(2a - 3b)(2a + 3b)$ $\frac{1}{6x}$	Difference of 2 squares Get denominator equal (6x)									
18	Trigonometric Formula	Depth at 1.30pm = 19.2m Max difference = 19metres	Max Depth = 12.5 + 9.5 = 22 Min Depth = 12.5 - 9.5 = 3									
19	Surds and Indices	$2\sqrt{2} - 2$ b^1	$\sqrt{12} - \sqrt{2}\sqrt{2}$ numerator (top) simplifies to b ²									
Page 17												
14	Proving the n th case	$(20 \times 8) - (22 \times 6) = 160 - 132 = 28$ $(x+14)(x+2) - x(x+16)$ Multiply out and simplify to 28.	For proving every case, set one value at "n", then get the other values as shown <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>x</td> <td></td> <td>x+2</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>x+14</td> <td></td> <td>x+16</td> </tr> </table>	x		x+2				x+14		x+16
x		x+2										
x+14		x+16										
15	Trig Equations	X = 73.4°, 286.6°	$[\text{Cos}x = 2/7, x = 73.4]$ Cosine +, so solutions in first and fourth quadrants.									
16	Changing the subject & Substitution	v = 13	Substitute values into equn. $26(2 + v) = 30v$ $4v = 52$									
1	Calculations, significant figures	£101/second	1year = 365days = 8760 hours = 525600 mins = 31536000 secs									
2	Problem Solving	x jumped first, y opened immediately	x fell faster for longer then slowed when chute opened									

Page 21																											
8	Quadratics	A (0, -3) B (-3/2, 0); C (1/2, 0) Min value: $y = -4$, when $x = -0.5$	$(2x - 1)(2x + 3)$ Minimum, halfway between roots (B&C).																								
9	Patterns	$7^3 + 1 = (7 + 1)(7^2 - 7 + 1)$ $n^3 + 1 = (n + 1)(n^2 - n + 1)$ $(2p)^3 + 1 = (2p + 1)(4p^2 - 2p + 1)$	Write $8p^3$ as $(2p)^3$, then replace 'x' with '2p'																								
10	Surds	$\frac{\sqrt{2}}{4}$	$\sqrt{24} = 2\sqrt{6}$ Rationalise denominator																								
11	Equations	$I = 2.5$ $c = 1$ Maximum Intensity is 20.	when $2^0 = 1$, ie you divide by the smallest possible value.																								
Page 22																											
1	Calendar, Scientific Not.	5.256×10^9	2001 not a leap year $10000 \times 60 \times 24 \times 365$																								
2	Standard Deviation	SD = 1.28 Rural Stations have a higher mean price by 1.05p and are much more varied in price (higher SD)	Mean = $843.3 \div 10 = 84.33$ <table border="1"> <thead> <tr> <th>x</th> <th>$(x - \bar{x})^2$</th> </tr> </thead> <tbody> <tr><td>81</td><td>11.0889</td></tr> <tr><td>83.9</td><td>0.1849</td></tr> <tr><td>84.2</td><td>0.0169</td></tr> <tr><td>84.2</td><td>0.0169</td></tr> <tr><td>84.4</td><td>0.0049</td></tr> <tr><td>84.8</td><td>0.2209</td></tr> <tr><td>84.9</td><td>0.3249</td></tr> <tr><td>85.2</td><td>0.7569</td></tr> <tr><td>85.1</td><td>0.5929</td></tr> <tr><td>85.6</td><td>136129</td></tr> <tr><td></td><td>Tot=14.821</td></tr> </tbody> </table>	x	$(x - \bar{x})^2$	81	11.0889	83.9	0.1849	84.2	0.0169	84.2	0.0169	84.4	0.0049	84.8	0.2209	84.9	0.3249	85.2	0.7569	85.1	0.5929	85.6	136129		Tot=14.821
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3	Appreciation / depreciation	£150907	1999.. H90000; C60000 2000.. H94500; C55200 2001.. H99225; C50784 2002.. H104186; C46721																								
4	Equation of a Straight line. Sim. Equations	Gradient = 1/3; y-intercept = (0, 2) $x = 6, y = 4; (6, 4)$	Get gradient of line from $y=mx+c$, then rearrange																								
5	Formulae	Diameter = 7.3cm	$Vol_{cylinder1} = 497.5cm^3$ $Vol_{cylinder2} = \pi r^2 h$ $497.5 = 3.14 \times r^2 \times 12$																								

Page 23																																									
	Sine Rule	Bearing of P from W = 157.8°	Interior angle P = 22.2°																																						
	Trigonometric Equations	x = 184.59, 355.41	Tan 40 = 0.839 Sin x = -0.080 Solutions in 3 rd & 4 th quads.																																						
8	Volume and Area of a triangle (sine)	Volume = 275.75	Area(triangle) = 0.5ab Sin C = 55.15 Volume = Ah = 55.15 × 5																																						
9	Variation	Wire B length = 6.75m	Wire1 : $R = \frac{k3}{2^2}$ Wire2 : $R = \frac{kL}{3^2}$ Equate the two & calculate L																																						
Page 24																																									
10	Cosine Rule SOHCAHTOA	Angle at Hinge = 107.5° h = 66.8cm	Use Cosine Rule 																																						
1	BODMAS	0.88	“2.1 × 3” first																																						
2	Fractions	$1\frac{7}{8}$	Common denominator for addition, $1/8 + 6/8$																																						
3	Inequalities	$x < 1$	$3 > 3x$																																						
4	Functions	$f(-3) = -6$	$f(-3) = (-3)^2 + 5(-3) = 9 - 15$																																						
5	Factorising	$(p - 2q)(p + 2q)$ $\frac{p - 2q}{3}$	Difference of 2 squares																																						
6	Changing the Subject	$h = 2L + t$	Multiply by 2 to remove fraction: $2L = h - t$																																						
Page 25																																									
7	Cosine Rule		Use cosine rule with values to get 1/8																																						
8	Stem and Leaf	<table style="border-collapse: collapse; margin-left: auto; margin-right: auto;"> <tr> <td style="border-right: 1px solid black; padding: 0 5px;">9</td> <td style="padding: 0 5px;">1</td> <td style="border-right: 1px solid black; padding: 0 5px;">1</td> <td style="padding: 0 5px;">5</td> <td style="padding: 0 5px;">5</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 0 5px;">9</td> <td style="padding: 0 5px;">5</td> <td style="border-right: 1px solid black; padding: 0 5px;">2</td> <td style="padding: 0 5px;">1</td> <td style="padding: 0 5px;">2</td> <td style="padding: 0 5px;">3</td> <td style="padding: 0 5px;">5</td> <td style="padding: 0 5px;">6</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 0 5px;">8</td> <td style="padding: 0 5px;">6</td> <td style="border-right: 1px solid black; padding: 0 5px;">4</td> <td style="padding: 0 5px;">3</td> <td style="padding: 0 5px;">1</td> <td style="padding: 0 5px;">3</td> <td style="padding: 0 5px;">4</td> <td style="padding: 0 5px;">7</td> <td style="padding: 0 5px;">9</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 0 5px;"></td> <td style="padding: 0 5px;">9</td> <td style="border-right: 1px solid black; padding: 0 5px;">6</td> <td style="padding: 0 5px;">4</td> <td style="padding: 0 5px;">1</td> <td style="padding: 0 5px;">6</td> <td style="padding: 0 5px;">6</td> <td></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 0 5px;"></td> <td style="padding: 0 5px;">0</td> <td style="border-right: 1px solid black; padding: 0 5px;">0</td> <td style="padding: 0 5px;">5</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> n = 15; 4 1 = 41	9	1	1	5	5	9	5	2	1	2	3	5	6	8	6	4	3	1	3	4	7	9		9	6	4	1	6	6			0	0	5					
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10	Surds	$5\sqrt{3}$	$\sqrt{27} = 3\sqrt{3}$																																						
11	Indices	y^2	$(a^m)^n = a^{m \times n}$ $a^m \times a^n = a^{m+n}$																																						
12	Equation of a straight line	$g = \frac{7}{9}h + 12$	Calculate gradient using given coordinates.																																						

Page 26			
1	Scientific Notation	3.4308×10^{-3}	multiply by 18
2	Reverse %	Cost before VAT = £127.66	Price includes VAT. 117.5% = 150 1% = 1.276595...
3	Quadratic Formula	$x = 1.3$ or -2.8	$x = \frac{-(3) \pm \sqrt{(3)^2 - 4(2)(-7)}}{2(2)}$
4	Sine Rule SOHCAHTOA	TS = 332.7 H = 190.8	
5	Volume of a Prism	Volume = 1.2m^2	Area (rectangle) = 0.15 Area (semi circle) = 0.1413 Volume = Ah
Page 27			
6	Circle Geometry Pythagoras	$x = 3.30\text{m}$	 <p>1.3m</p> <p>1.3 obtained from $3.4 - \text{radius}$</p>
7	Ratio	41 tins of blend	$\frac{20}{6} \text{kgBrazilian} = 5\text{kgColumbian}$ $16\frac{2}{3} \text{Brazilian} = 25\text{Columbian}$ <i>Therefore...41</i> $\frac{2}{3} \text{kg}$
8	Trigonometric Equations	A (23.8, 0.4) B (156.42, 0.4)	Solve: $\sin x = 0.4$
9	Formulae	EC10minutes = £1.10 EC = $75 + 5(m - 3)$ GC = $80 + 2(m - 2)$ Green call cheaper after 6 minutes	$25 \times 3 + 5(m - 3)$ $40 \times 2 + 2(m - 2)$ Equate equations $\Rightarrow m = 5.33333\text{mins}$
Page 28			
10	Variation	$T = \frac{kv^2}{r}$ If radius halved and speed tripled, tension $\times 18$	If speed tripled $\Rightarrow 3v$ If radius halved $\Rightarrow 0.5v$ $T = \frac{(3v)^2}{(1/2r)^2} = 18\frac{v^2}{r}$
11	Patterns	$n = 5$ Sum of 1 st 5 numbers = $32 - 1$ Sum of 1 st n numbers = $2^n - 1$	$2 \times 2 \times 2 \times 2 \times 2 = 32$
12	Similar Triangles	AP = 2m Height = 3m	

Page 29			
1	BODMAS	6.24	$8.4 \div 7$ first
2	Addition and multiplication of Fractions	$\frac{17}{28}$	$1 + \frac{6}{8} + \frac{3}{8} = 1 + \frac{9}{8} = 2\frac{1}{8}$ Multiply fraction by whole no; fraction by fraction and then add $2 \times \frac{2}{7} = \frac{4}{7} = \frac{16}{28}$ $\frac{2}{7} \times \frac{1}{8} = \frac{2}{56} = \frac{1}{28}$ 
3	Collecting like terms	$-6x - 16$	$6x - 12 - 12x - 4$
4	Functions	$f(-2) = 15$ $t = -0.5$	$f(-2) = 7 - 4(-2) = 7 + 8$ $f(t) = 7 - 4t$ $7 - 4t = 9 \dots$
5	Factorising quadratics	$(2x + 3)(x - 5)$	
6	Gradient and Equation of a line	$M_{AB} = 2$ $y = 2x - 5$ $k = 1$	Substitute $x=3k$; $y=k$ into line equation. " $k = 2(3k) - 5 \dots$ "
7	Simultaneous Equations	$3n + 2m = \text{£}145$ $5n + 3b = \text{£}240$ Breakfast = 5; Night = £45	
Page 30			
8	Probability	$P(6) = 4/40 = 1/10$ $P(\text{Yellow}) = 1/40$	
9	Box Plots	25% of boxes contain less than 50 matches	Each quartile is 25%, broken up by Q1, Median & Q3.
10	Ratio	9 Teachers needed. 75Pupils, 15teachers, 5 parents	Parent[1]:Teacher[3]:Pupil[15] multiply ratios by 3 Parent[3]:Teacher[9]:Pupil[45]. $15+3+1 = 19$ shares. $100 \div 19 = 5.26 \Rightarrow 5$ parents max
13	Algebra	$TD = 3x$	Area (triangle) = $TD \cdot x$ Area (rectangle) = $12x^2$ Area (tri) is quarter of rectangle $3x^2 = TD \cdot x$ $TD = 3x$

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1	Significant Figures	5090	$12 = 5000$ $1\text{pm} = 5030$ $2\text{pm} = 5060.18$

			3pm = 5090.54																
2	Standard Deviation	Mean = 46 SD = 4.1	Mean = 276/6 = 46 <table border="1"> <thead> <tr> <th>x</th> <th>(x - x)²</th> </tr> </thead> <tbody> <tr> <td>41</td> <td>25</td> </tr> <tr> <td>43</td> <td>9</td> </tr> <tr> <td>44</td> <td>4</td> </tr> <tr> <td>47</td> <td>1</td> </tr> <tr> <td>49</td> <td>9</td> </tr> <tr> <td>52</td> <td>36</td> </tr> <tr> <td></td> <td>Tot = 84</td> </tr> </tbody> </table>	x	(x - x) ²	41	25	43	9	44	4	47	1	49	9	52	36		Tot = 84
x	(x - x) ²																		
41	25																		
43	9																		
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	Tot = 84																		
3	Cosine Rule	x = 47.71km	Bearing of A=072°; bearing of B=140°. Subtract to get angle inside triangle at H [68°].																
4	Volume and Problem solving	Vol _{mug} = 1099cm ³ H = 7.64cm	1ml = 1cm ³ . Therefore depth of liquid is 600cm. 600 = 3.14 × (2) ² × h																
5	Formula	Polygon with 20 diagonals has 8 sides	$\frac{n(n-3)}{2} = 20$ n(n-3) = 40 n ² - 3n - 40 (n+5)(n-8)																
6	SOHCAHTOA	SW = 6.23	From LH triangle: x = 13 × Cos25 From second triangle: SW = 7.32 × Cos25																
Page 32																			
7	Area of a triangle (Sine)	Area (ABC) = 37.1°	Area = 0.5 × 9 × 14 × SinABC																
8	Quadratic Graphs and Equations	a = -1; b = 3. k = 2 Minimum TP = (1, -8)	[could be a = 3, b = -1] Substitute x=0; y=-6 Turning points half way between roots (x = -1, x = 3)																
9	Similar Volumes	New Volume = 101.25ml	Linear SF = 9/6 = 3/2 Volume SF = (3/2) ² = 27/8																
10	Circle Geometry and Pythagoras	R = 3.25m																	