

Question Analysis

Question Analysis	PPQ Rev. Code	2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		CHK ✓
		I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	
<b>Calculations, fractions, percentages</b>																								
BODMAS and Numerical Calculations; including working with positive and negative numbers	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fractions - Add, subtract, multiply, divide work with Improper Fractions (may be in context)	2	2		2		2		2		2		2		2				2		2		5		
Find fraction of a quantity																								
Find percentage of a quantity										3														
Growth & Decay calculations including: appreciation/depreciation/savings interest e.g. increase 4% per year for 3 years, e.g. decrease by 15% per year for 3 years. Using multiplier: e.g. 1.04 or 0.85 (for above)	3		3				1		4					1		1			8		1	9	1	
Reversing the Change - working back to 100% or calculate price before VAT	4				2			6					3	5		3	7		6				4	
Percentage Profit/increase/decrease, etc.																								
Standard Form (Scientific Notation) including use in calculations	5		1		1			1		1		1							1					
Rounding - decimal places / Significant Figures			5,11		3,5		1		7		4,10		6		2		1		1,3		4		3	
<b>Proportion and Variation</b>																								
Simple Ratio and Proportion e.g. 4 : 3 : 2	6				7	10									9						9			
Direct Proportion/Inverse Proportion	7		9													6		7			11			
Joint Variation - halving, doubling	7		9		10									10									11	
<b>Distance, Speed, Time</b>																								
DST Calculations						11a,b		1								6								
Interpreting Graphs																								
<b>Statistics &amp; Data Handling</b>																								
Mean, Median, Mode, Range (simple)																7								
Work back from mean to individual values																7								
Combining means																								
Median from a frequency table																						6		
Mean from Frequency Table																								
Quartiles from a list																								
Make a cumulative frequency table from data										7														
Quartiles and median from Cum. Freq. Table										7														
Pie Charts - Read/Construct - Angles																								
5 Figure Summary, Dot & Box Plots	8	5a		8		9		5																
Stem & Leaf Diagram including finding median and mode																2a								
Standard Deviation and mean	9		2a		2a,b		3	2		2a		3a									3a			
Interpretation of Spread/comparison	9	5b	2b		2c					2b		3b						5			3b			
Scattergraph, Line of Best Fit																		6b						
<b>Probability</b>																								
Simple Probability, including how many outcomes	10					8		7		4				3				6		5				
Probability and Relative Frequency from a table	10	7a														2b						6		
Probability & Expected value from a table		7b																						
Conditional Probability																								
<b>Areas and volumes</b>																								
Areas of Triangle and Quadrilaterals: (Square, rectangle, kite, rhombus, parallelogram, trapezium) and use for problem solving												10a 10b							11				9a	
Volume of Prism and/or working backwards to a length	11		8		5			9				7a 7b									5		9b	
Surface area of a prism																								
Cylinders, Volume, Curved Surface Area and working back from volume to a length including problems in context	12		5			4								12a 12b				2					11	
<b>Angles</b>																								
Angles & Parallel Lines, e.g. vert. opp., alternate, corresponding also basic angle properties of shapes and regular polygons.														6a					9a,c				7a	
Angle properties of triangle, quadrilaterals																								
<b>Circles</b>																								
Circumference, Area, working backwards to solve problems							12						1											
Circle Properties: Tangents (90° to radius), Chord, Isosceles Triangles, angle in semi circle.																	5b							
Area of Sector, Length of arc, also working backwards to find angle or radius	13										10		8	7		9			11		6		5	
<b>Similarity</b>																								
Similar Triangles - calculating lengths	14				12					6		11	8											
Similar Shapes - area, volume calculations	15					9						7							4		7		6	

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	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	✓	
<b>Pythagoras</b>																								
Pythagoras - may need to be used twice in same question.	16								10		5		9		10	5a 5b	5				5	12		
Pythagoras in the circle: Oil/milk tanker or sheep shelter problems	17			6		10		8					12										8	
Converse of Pythagoras										5														
<b>Trigonometry</b>																								
Trigonometry - SOH-CAH-TOA - may be applied more than once in the question	18		10b		4		6		6		10	5												
Bearings & Trigonometry			6				3				7		6		6				9					
Exact Values - sin, cos, tan																								
Sine Rule - including use of bearings	19		6		4			5		7				6				11			8	10		
Cosine Rule - including use of bearings	19		10a	7			3		7			6b				7		9					7b	
Area of Triangle = $\frac{1}{2} ab \sin C$ use it: to find the angle or the value of sin C or to find one of the sides (given area/angle)	20					7		9		3				8		8					10			
Identify Trig Function: $y = a \sin bx + c$							8						13											
Solve Trig Equation: eg $3 \sin x - 2 = 0$	21		7		8			10		11		10		10		12								12b
Max and min values of Trig functions	22											10									13			12a
Applications in context - using as a model												10									13			
<b>Algebra</b>																								
Breaking Brackets, simplify or solve equation						3					6		5											
Evaluate an expression								3																
Using FOIL to break brackets												4a						4b			2			
Using Multiplication Table to break brackets																							2	
Factorising - common factor																								
Factorising - difference of 2 squares	23			5a								5a			2		4a						2	
Factorising - quadratic function ( ) ( )						5																		
Simplify algebraic fraction	23			5b			4					5b				5								
Add, subtract, multiply, divide algebraic fractions including in context.																5								
<b>Algebra - solving equations</b>																								
Solve simple linear equations											6													
Solve Equations with fractions	24	4					11c			6		11			6, 13				11		4	10		
Functions - evaluating: e.g. $f(-2)$	25	3		4		4a				11a	3							3a				3		
Functions - use in reverse e.g. Given $f(a) = -2$	25					4b				11b								3b						
Solve Inequalities			3												4									
Using a formula or using it backwards	26					5			1		9a	14a 14b			11a		10							
Change subject of formula	27			6								4		3		9		3						
<b>The Straight line equation</b>																								
Straight Line - Gradient or Equation from a graph, table or coordinates of points.	28	6	4a	12		6a,b		2a	5	9	4		6		4				6a				8	
Straight Line - Using an equation, find coordinates of a point on the line Interpretation of the straight line in context	28		4b			6c	10	2b		9									6b	7 9			8	
<b>Simultaneous Equations</b>																								
Simultaneous Equations - form and solve	29		4b	13		7	8				9		11		4	8		7			7			
<b>Quadratic Equations</b>																								
Quadratic Equation - solve using factors	30			9				11	12			9c		11b 13	8	11c	10		4b	12			12	
Quadratic Equation - solve using formula	30			11c		3				4				2				3		4			3	
Quadratic Functions - symmetry, roots, max/min Using the graph and properties of Quadratic	30		8a, b, c				8a, b,c				8			13	8		10						12	
Forming a quadratic equation; Quadratic equation as a model for problem. solving and interpret solution in context.	30			11a,b				11	12			9b		11a 11b 13	8 12	11b	10		4a	12			12	
<b>Indices &amp; Surds</b>																								
Indices	31			11		12a		11b				4b	7		9		4c						9a	
Surds - simplify, evaluate	32	10		10		12b		11a		11a		4c	9		9, 10		5		8				9b	
Surds - rationalise denominator			10																					
Growth and decay - using the exponential function e.g. $2^x$ and solving equations involving $2^x, 3^x$ etc.			11a, b, c		11										10									
<b>Problem solving</b>																								
Making and using formula to solve problems	33			9	13	5			9	8	11				12	10								10
Number Sequences and patterns	34	9			11	11				8								12	10					