

Core 1 Essential skills 1

Student Name:	Target:
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1	Find the midpoint of (12,2) and (-7,-3)	
2	Find the gradient of the line between (1,4) and (-7,52)	
3	Write down the gradient and y-intercept of $10y - 5x = 7$	
4	Line L_1 has equation $x + 5y + 14 = 0$ Write down the gradient of any line perpendicular to this one.	
5	Find the equation of the line perpendicular to L_1 that passes through (3,-1)	
6	Find the point of intersection between $5x - 3y = -7$ and $2x - 4y = 14$	
7	Find the equation of the line that passes through (1, 1) and (7, 31)	
8	Simplify the following algebraic fraction $\frac{2x+3}{6x+9}$	
9	Solve the following quadratic equation $x^2 - 6x - 40 = 0$	
10	Use the quadratic formula to solve $2x^2 - 9x + 1 = 0$	
11	Write the following in the form $(x + p)^2 + q$ $x^2 + 16x + 5$	
12	Write down the radius and the coordinates of the centre of the circle: $(x - 3)^2 + (y + 5)^2 = 36$	
13	Use factor theorem to factorise this cubic $f(x) = x^3 - 2x^2 - 5x + 6$	
14	Find the remainder when $x^2 + 4x - 1$ is divided by $(x + 4)$	
15	Simplify the following $3\sqrt{10} \times 5\sqrt{5}$	
16	Rationalise the denominator $\frac{3}{\sqrt{5}}$	
17	Find the gradient of the tangent to the curve $y = 3x^3 - 8x + 5$ when $x = 2$	
18	Find the stationary point when $y = x^2 - 8x + 12$ Determine the nature of the stationary point.	
19	Find $\int (8x^3 + 6x^2 - 5) dx$	
20	Evaluate $\int_1^3 (x^3 + 9) dx$	