

7	(a)	<p><b>DR</b></p> $f(-2) = (-2)^3 + (-2)^2 - 8(-2) - 12 = 0$ <p>so [by the factor theorem] <math>(x + 2)</math> is a factor</p>	<p><b>M1</b></p> <p><b>A1</b></p> <p><b>[2]</b></p>	<p><b>1.1a</b></p> <p><b>2.2a</b></p>	<p>Substitution seen. Do not allow for division here</p> <p>Clear conclusion.</p>	
7	(b)	<p><b>DR</b></p> $f(x) = (x + 2)(x^2 - x - 6)$ $f(x) = (x + 2)^2(x - 3) = 0$ <p>so <math>x = 3</math> or <math>x = -2</math> [repeated]</p>	<p><b>M1</b></p> <p><b>A1</b></p> <p><b>B1</b></p> <p><b>A1</b></p> <p><b>[4]</b></p>	<p><b>3.1a</b></p> <p><b>1.1</b></p> <p><b>1.1</b></p> <p><b>2.1</b></p>	<p>Attempt to divide or factorise</p> <p>Correct quadratic factor seen</p> <p>Product of linear factors seen</p> <p>Do not allow without full working</p>	<p>Also allow M1 A1 for</p> $f(x) = (x - 3)(x^2 + 4x + 4)$ <p>if <math>(x - 3)</math> also established as a factor by division or factor theorem.</p>