



1. Factorise completely $x - 4x^3$ (1)

2. Factorise fully $4xy^5 + y^5 + 12y^7$ (1)

3. Fully factorise $3x^3 - 4x^2 - 35x + 12$ (2)

4. $g(x) = 6x^3 - 7x^2 - 71x + 12$. Find the value of x when $g(x) = 0$. (4)

5. $f(x) = x^3 + 2x^2 - 11x - 12$

a. Evaluate $f(1)$, $f(2)$, $f(-1)$ and $f(-2)$ (2)

b. State the linear factors of $f(x)$ and fully factorise $f(x)$. (2)

Solutions

1.

$x - 4x^3 = x(1 - 4x^2)$	M1
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2.

$4xy^5 + y^5 + 12y^7 = 4y^5(x + 1 + 12y^2)$	M1
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3.

Use of calculator to give, $x_1 = 4$ $x_2 = \frac{1}{3}$ $x_3 = -3$	M1
$(x - 4)(3x - 1)(x + 3)$	M1

4.

Use of calculator to give, $x_1 = 4$ $x_2 = \frac{1}{6}$ $x_3 = -3$	M1
$(x - 4)(6x - 1)(x + 3)$	M1

5a.

$f(1) = 1^3 + 2(1)^2 - 11(1) - 12 = -20$ $f(2) = 2^3 + 2(2)^2 - 11(2) - 12 = -18$	M1
$f(-1) = (-1)^3 + 2(-1)^2 - 11(-1) - 12 = 0$ $f(-2) = (-2)^3 + 2(-2)^2 - 11(-2) - 12 = 10$	M1

5b.

Use of calculator: $x_1 = -1$ $x_2 = 3$ $x_3 = -4$	M1
$(x + 1)(x - 3)(x + 4)$	M1

