



- (1) $y = x^3 + 2x^2 - 5x + 12$ B
- (2) $y = x^3 + 3x^2 - 4x - 12$ E
- (3) $y = x^3 - 7x^2 + 4x + 12$ A
- (4) $y = x^3 - 3x^2 - x - 12$ C
- (5) $y = x^3 + x^2 - 8x - 12$ F
- (6) $y = x^3 - x^2 - 8x + 12$ D

E has roots $-3, -2, 2$. Sub in $x = -3$ and $x = 2$, into (2) $y = 0$
 F has roots $-2, -2, 3$

Sub in $x = -3$ and $x = 2 \rightarrow$ into (2), $y = 0 \Rightarrow E$

Sub in $x = 3$ into (2), $y = 30 \Rightarrow$ not F

C has two complex roots and one real root. but (2) factorises to $y = (x-2)(x+2)(x+3)$

\therefore Should have 3 real roots \Rightarrow Not C

Confirmed to be E

Sub in $x = 3$ into (5), $y = 0 \Rightarrow$ could be C or F

Sub in $x = -2$ into (5) $y = 0 \Rightarrow F$

\Rightarrow (4) is C

(1) has 1 real 2 complex roots \Rightarrow B

D has roots $2, 2, -3$

When sub $x = -3$ into (3), $y = -90 \Rightarrow$ (3) is A

A has roots $-1, 2, 6$

When sub $x = -1$ into (3), $y = 0 \Rightarrow$ (3) is A

\therefore (6) is D