

⑤ let $p(x) = x^3 - ax^2 + 6x - a$

when $p(x)$ is divided by $x - a$ remainder by remainder theorem

$$= p(a)$$

$$= a^3 - a \times a^2 + 6a - a$$

$$= a^3 - a^3 + 5a$$

$$= 5a$$

③ let $p(x) = 3x^3 + 7x$

$$p\left(-\frac{7}{3}\right) = 3 \times \left(-\frac{7}{3}\right)^3 + 7 \times -\frac{7}{3}$$

$$= \cancel{3} \times \frac{-343}{\cancel{9} 27} - \frac{49}{3}$$

$$= -\frac{343}{9} - \frac{49}{3}$$

$$= \frac{-343 - 147}{9}$$

$$= \frac{-490}{9}$$

$\therefore x \neq 0$

$\therefore 7 + 3x$ is not a factor of $p(x)$