



1	2	3	4	5
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FACTOR

If $\frac{A}{B}$ has no remainder, then B is one of the factors of A.

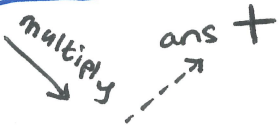
FACTOR THEOREM

$$\frac{f(x)}{ax-b} \quad \begin{matrix} \swarrow \\ ax-b=0 \\ x=\frac{b}{a} \end{matrix}$$

If $f(\frac{b}{a})=0$ then $(ax-b)$ is one of the factors of $f(x)$

⊗ vice versa

FINDING Q&R



FIND A FACTOR

By finding a root! Try $f(1)$, $f(-1)$, $f(2)$, $f(-2)$, until you get 0



$$\frac{20}{7} = 2 + \frac{6}{7}$$

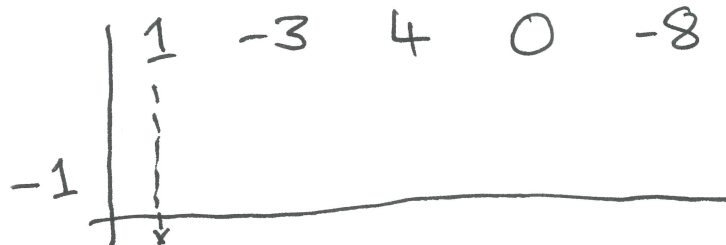
$$20 = (2)(7) + 6$$

Always finish by

Factorise $x^4 - 3x^3 + 4x^2 - 8$

$$\frac{x^4 - 3x^3 + 4x^2 - 8}{x+1} = Q + \frac{R}{x+1}$$

$$x^4 - 3x^3 + 4x^2 - 8 = (Q)(x+1) + R$$



$$\frac{x^4 - 3x^3 + 4x^2 - 8}{x+1} = x^3 - 4x^2 + 8x - 8$$

$$x^4 - 3x^3 + 4x^2 - 8 = (x^3 - 4x^2 + 8x - 8)(x+1)$$

