

PARTIAL FRACTIONS 4:

① Express $\frac{x+3}{x^2(x-1)}$ in partial fractions

② a) find $\frac{3x}{(1+x)^2(2+x)}$ in partial fractions

b) Hence evaluate $\int_0^1 \frac{3x}{(1+x)^2(2+x)} dx$ to 3 decimal places

③ If $f(x) = \frac{8-x-x^2}{x(x-2)^2}$

a) Express $f(x)$ in partial fractions

b) Evaluate $f'(1)$

④ If $f(x) = \frac{x^2+x+13}{(x+2)^2(x-3)}$

a) Express $f(x)$ in partial fractions

b) Hence evaluate

$\int_6^7 f(x) dx$ to 3 decimal places

⑤ If $f(x) = \frac{11+x-x^2}{(x+1)(x-2)^2}$, find $f(x)$ in terms of partial fractions.

⑥ $f(x) = \frac{6+x-9x^2}{x^2(x+2)}$

a) Find $f(x)$ in terms of partial fractions

b) Find $f'(x)$

c) Verify that $f(x)$ has a stationary value when $x=2$