

$$\boxed{30} \lim_{x \rightarrow \infty} \frac{4x^2 + 5x}{x^2 - 4x}$$

درجه السط  
درجه قسما، 5 =

$$= \frac{4}{1} = \boxed{4}$$

- See 9.3 : Rate of change and Derivatives.

$\boxed{39}$  Suppose total cost in dollars from the production of  $x$  printers is given by:-

$$C(x) = 0.0001x^3 + 0.005x^2 + 28x + 3000$$

Find the average rate of change of total cost when production changes:-

a) from 100 to 300 printers.

$$\text{the average rate of change} = \frac{C(300) - C(100)}{300 - 100}$$

$$C(300) = 0.0001(300)^3 + 0.005(300)^2 + 28(300) + 3000$$

$$= 14550$$

and  $C(100) = 0.0001(100)^3 + 0.005(100)^2 + 28(100) + 3000$

$$= 5950$$

$$\therefore \text{average rate of change} = \frac{14550 - 5950}{200} = \frac{8600}{200}$$

$$= \underline{\underline{43}}$$

b) from 300 to 600

$$\text{average rate of change} = \frac{C(600) - C(300)}{600 - 300} = \frac{43200 - 14550}{300}$$

$$= \frac{28650}{300} = 95.5$$