

Exponential Questions Exercise

1)

$$c) \frac{12^{2n} + 16^n}{3^{2(n+1)} + 9} = \frac{(3 \cdot 4)^{2n} + 16^n}{9 \cdot 3^{2n} + 9} = \frac{9^n \cdot 16^n + 16^n}{9(3^{2n} + 1)} = \frac{16^n \cancel{(9^n + 1)}}{9 \cancel{(9^n + 1)}} = \frac{16^n}{9} \checkmark$$

$$d) \frac{10^n + 2^{5n}}{20^n + 4^{2n}} = \frac{10^n + 32^n}{20^n + 64^n} = \frac{10^n + 32^n}{2^n(10^n + 32^n)} = \frac{1}{2^n} \checkmark$$

$$e) \frac{p + 1.5 - (p)^{-1}}{2p - (2p)^{-1}} = \text{multiply numerator and denominator by } (2p)$$

$$= \frac{(2p)(p + 1.5 - (p)^{-1})}{(2p)(2p - (2p)^{-1})} = \frac{2p^2 + 3p - 2}{4p^2 - 1} = \frac{(p+2)(2p-1)}{(2p-1)(2p+1)} = \frac{p+2}{2p+1} \checkmark$$