

$$\frac{x^3 - 4x}{x^2 - 7x + 6} \div \frac{x^2 + x - 2}{2x - 2}$$

$$\frac{x(x+2)(x-2)}{(2x-3)(x-2)} \times \frac{2(x-1)}{(x+2)(x-1)}$$

$$= \frac{2x}{2x-3} \longrightarrow \longrightarrow \longrightarrow \longrightarrow \longrightarrow$$

$$\frac{DE}{DF} = \frac{FG}{FH}$$

$$\therefore DE = FG = 2 \text{ given above}$$

$$\frac{2}{k} = \frac{2}{k}$$

$$FH = \frac{k^2}{2}$$

$$\frac{2}{k} = \frac{k}{FH}$$

$$k^2 = 2FH$$

$$k^2 = 2$$

$$\frac{FG}{DG} = \frac{FH}{AE}$$

$$\frac{2}{2+k} = \frac{FH}{2}$$

$$FH(2+k) = 4$$

$$FH = \frac{4}{2+k}$$

$$\frac{k^2}{2} = \frac{4}{2+k}$$

$$3.1 \quad S_n = 3^{n+1} - 6$$

Where:  $S_n \rightarrow$  Sum to  $n^{\text{th}}$  terms

$$\begin{aligned} \therefore S_{12} &= 3^{12+1} - 6 \\ &= 3^{13} - 6 = 1,594,317 \end{aligned}$$

$$3.2 \quad \textcircled{1} \quad T_n = S_n - S_{n-1}$$

$$\begin{aligned} T_{12} &= S_{12} - S_{11} \\ &= 1,594,317 - [3^{11+1} - 6] \\ &= 1,594,317 - 531,435 \\ &= 1,062,882 \end{aligned}$$

$$3.3 \quad T_{12} = 1,062,882$$

$$T_{11} = \cancel{354,294} = 354,294$$

$$T_{10} = 78,098$$

$$\therefore T_{12}/2 = \frac{1,062,882}{2} = 531,441$$

$$T_{11}/2 = 177,147$$

$$T_{10}/2 = 39,049$$

$\therefore$  Since all terms are multiples of 2 / Since all the above terms are divisible by 2 without leaving a Remainder. the above theory is true