Questions from Homework

(d) $2^{50}, 2^{48}, 2^{46}, \ldots$

$t_{15} = ?$

$a = 2^{50}$

$r = \frac{t_2}{t_1} = \frac{2^{48}}{2^{50}} = 2^{-2} = \frac{1}{4}$

$t_n = ar^{n-1}$

$t_{15} = (2^{50})(2^{-2})^{14}$

$= (2^{50})(2^{-28})$

$= 2^{22}$

(e) $\frac{p^2}{q}, \frac{p^3}{2q}, \frac{p^4}{4q}, \ldots$

$t_{10} = ?$

$a = \frac{p^2}{q}$

$r = \frac{p^3}{2q} \div \frac{p^2}{q}$

$= \frac{p^3}{2q} \times \frac{q}{p^2}$

$= \frac{p}{2}$

$t_n = ar^{n-1}$

$t_{10} = \left(\frac{p^2}{q}\right)\left(\frac{p}{2}\right)^9$

$= \left(\frac{p^2}{q}\right)\left(\frac{p^9}{512}\right)$

$= \frac{p^{11}}{512q}$

(f) $\sqrt{3}, \sqrt{6}, 2\sqrt{3}, \ldots$

$t_9 = ?$

$a = \sqrt{3}$

$r = \sqrt{2}$

$$t_n = ar^{n-1}$$

Find "a", "r", and "t_n" for the following sequences!

$t_2 = 12,\ t_5 = 768$

$t_2 = ar^{2-1}$ | $t_5 = ar^{5-1}$

$t_2 = ar$ | $t_5 = ar^4$

$ar = 12$ | $ar^4 = 768$

$$\frac{ar^4 = 768}{ar = 12}$$

$$r^3 = 64$$

$$r = 4$$

$ar = 12$

$a(4) = 12$

$a = 3$

$t_n = ar^{n-1}$

$t_n = 3(4)^{n-1}$

Homework

#5- #6