

BE - PreCalc Friday 1-15-10

Homework Review: Pg. 771-772

16-21, 26-28,
37-40

Answers:

(16) $0.2 = r$.08, .016, .0032

(17) $-2.5 = r$ -125, 312.5, -781.25

(18) $3 = r$ 6, 18, 54

(19) $\frac{2}{5} = r$ $\frac{6}{125}$, $\frac{12}{625}$, $\frac{24}{3125}$

(20) $-0.5 = r$.875, -.4375, 0.21875

(21) $\sqrt{2} = r$ 12, $12\sqrt{2}$, 24

(26) $\frac{81}{2}$

(27) $-\frac{243}{2048}$

(28) 4×10^{-11}

(37) $\frac{605}{3}$

(38) 81.2248

(39) $-\frac{11,605}{512}$

(40) $80(1+\sqrt{3})$ (see next page)

1.

④⑩ S_8 of $2 + 2\sqrt{3} + 6 + \dots$

$$r = \frac{2\sqrt{3}}{2} = \sqrt{3}$$

$$S_N = \frac{a_1 - a_1 r^N}{1 - r}$$

$$S_8 = \frac{2 - 2(\sqrt{3})^8}{1 - \sqrt{3}}$$

$$\left\{ \begin{array}{l} \text{Since } (3^{\frac{1}{2}})^8 \\ = 3^4 \\ = 81 \end{array} \right.$$

$$S_8 = \frac{2 - 2(81)}{1 - \sqrt{3}}$$

$$S_8 = \frac{2 - 162}{1 - \sqrt{3}} = \frac{-160}{1 - \sqrt{3}} \cdot \frac{1 + \sqrt{3}}{1 + \sqrt{3}}$$

$$= \frac{-160(1 + \sqrt{3})}{1^2 - 3}$$

$$= \frac{-160(1 + \sqrt{3})}{-2}$$

$$= \boxed{80(1 + \sqrt{3})}$$

Geometric Means

The terms between any two non-consecutive terms of a geometric series.

Ex 4
PS 768

Write a sequence that has two geometric means between 48 and -750.

$$\Rightarrow \underset{a_1}{48} \quad \underset{a_4}{? \quad ?} \quad -750$$

$$a_n = a_1 r^{n-1} \quad \therefore -750 = 48 r^{(4-1)}$$

$$-750 = 48 r^3$$

$$-\frac{750}{48} = r^3$$

$$r^3 = -\frac{750}{48} = -\frac{375}{24} = \sqrt[3]{-\frac{125}{8}} = \sqrt[3]{r^3}$$

$$\boxed{-\frac{5}{2} = r}$$

$$\therefore a_2 = 48 \cdot -\frac{5}{2} = \boxed{-120}$$

$$a_3 = -120 \cdot -\frac{5}{2} = \boxed{300}$$