

WARMUP

#66 p 883

and

What do you think of standing classroom?

positives?

negatives?

66) $a = 24$
 $r = 0.8$

a) $a_n = 24 \cdot 0.8^{n-1}$

$a_3 = 24 \cdot 0.8^2 = 15.36 \text{ ft}$

b) $a_n = 24 \cdot 0.8^{n-1}$

c) $0.5 = 24 \cdot 0.8^{n-1}$

$.02083 = 0.8^{n-1}$

$\frac{\ln .02083}{\ln 0.8} = \frac{(n-1) \ln 0.8}{\ln 0.8}$

d)

$\sum_{k=1}^{\infty} a \cdot r^{k-1}$

$= \frac{24}{1-0.8} = \frac{24}{0.2}$

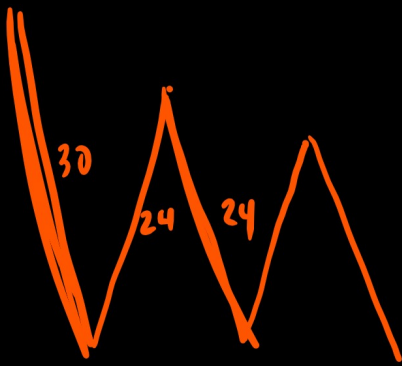
$= 120 \text{ ft}$

$17.35 = n-1$

$18.35 = n$

19 bounces

$120 \times 2 + 30 = 270 \text{ ft}$



70p883

$$a_n = 1000 \cdot 0.9^{n-1}$$

$$0.01 = 1000 \cdot 0.9^{n-1}$$

$$0.00001 = 0.9^{n-1}$$

$$\frac{\ln 0.00001}{\ln 0.9} = \frac{(n-1) \ln 0.9}{\ln 0.9}$$

$$n = 110.27$$

111th day

$$\sum_{k=1}^{\infty} 1000 \cdot 0.9^{k-1} = \frac{1000}{1-0.9} = \frac{1000}{0.1} = \$10000$$

50p873

$$a = 15$$

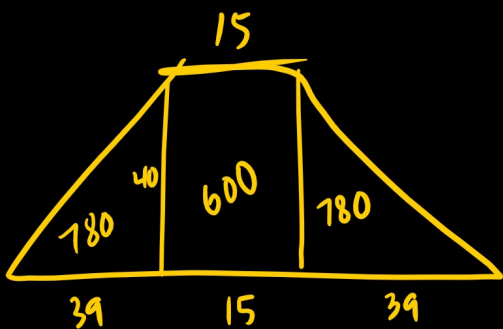
$$n = 40$$

$$d = 2$$

$$S_n = \frac{n}{2} (a + a_n) = \frac{40}{2} (15 + 93) = 2160 \text{ seats}$$

$$a_n = 15 + (n-1)2$$

$$a_{40} = 15 + 39 \cdot 2 = 93$$



51 p 882

$$1 + \frac{1}{3} + \frac{1}{9} + \dots \quad \frac{a}{1-r} = \frac{1}{1 - \frac{1}{3}} = \frac{1}{\frac{2}{3}} \\ \uparrow \quad r = \frac{\frac{1}{3}}{1} = \frac{1}{3} \\ a = 1 \\ = 1 \cdot \frac{3}{2} \\ = \frac{3}{2}$$

9 p 882

$$\left\{ \frac{3^{n-1}}{2^n} \right\} \quad \frac{1}{2}, \frac{3}{4}, \frac{9}{8}, \frac{27}{16}$$

$$\frac{\frac{3}{4}}{\frac{1}{2}} = \frac{3}{4} \cdot \frac{2}{1} = \frac{3}{2}$$

p 882 53

$$8 + 4 + 2 + \dots \quad \frac{8}{1 - \frac{1}{2}} = \frac{8}{\frac{1}{2}} = 16 \\ \uparrow \\ a \quad r = \frac{1}{2}$$

p 883 61

$$x, x+2, x+3$$

$$-4, -2, -1$$

$$\frac{x+2}{x} = \frac{x+3}{x+2}$$

$$(x+2)(x+2) = x(x+3)$$

$$x^2 + 4x + 4 = x^2 + 3x$$

$$x = -4$$