

SEQUENCES + SERIES REVIEW

19. Multiplying by 2; 64, 128, 256

$$20. r = \frac{1}{2} \quad S = \frac{a_1}{1-r} = \frac{8}{1-\frac{1}{2}} = \frac{8}{\frac{1}{2}} = 8 \cdot \frac{2}{1} = 16$$

21. Diverges - $r=3$; it'll keep increasing forever

$$22. \text{Finite Geo } r=2, n=10 \quad S_{10} = \frac{1(1-2^{10})}{1-2} = \frac{1-1024}{-1} = \frac{-1023}{-1} = 1023$$

$$23. n=4 \quad a_1=1+1=2 \quad S_4 = \frac{4}{2}(2+5) = 2(7) = 14$$
$$a_4 = 4+1=5$$

$$24. n = 9 - 4 + 1 = 6 \quad 25. d=6 \quad n=11 \quad S_{11} = \frac{4}{2}(15+75)$$
$$S_{11} = 55(90)$$
$$S_{11} = 495$$

$$26. \frac{45}{x} = \frac{x}{1620} \quad x^2 = 72900$$
$$\sqrt{\quad} \quad \sqrt{\quad}$$
$$x = 270$$

$$27. a_n = 3(-3)^{n-1}$$

$$a_5 = 3(-3)^{5-1} = 3(-3)^4 = 3(81) = 243$$

28. Yes, $r=2$

$$29. \bar{x} = \frac{22+34}{2} = \frac{56}{2} = 28$$

30. not arithmetic
+7, +21, +35

31. arithmetic, $d=-5$ $a_n = 7 + (n-1)(-5)$

$$a_n = 7 - 5n + 5$$

$$\text{Explicit Formula: } a_n = -5n + 12$$

$$a_{14} = -5(14) + 12 = -70 + 12$$

$$a_{14} = -58$$

32. arithmetic, $d=2$ recursive: $a_1 = 8$

$$a_n = a_{n-1} + 2$$