

17. A geometric sequence is defined using the following rule:

$$f(0) = 4 \text{ and } f(n) = f(n-1) \cdot -2$$

Find the fourth term of the sequence. Show how you arrived at your answer.

18. Which is larger, the 10th term of an arithmetic sequence that begins with the terms 0 and 100 or the 10th term of a geometric sequence that begins with the terms 5 and 10? Show work that justifies your answer.

arithmetic \rightarrow 0, 100, 200, 300, 400, 500, 600, 700, 800

geometric \rightarrow 5, 10, 20, 40, 80, 160, 320, 640, 900

1280, 2560

19. A local newspaper claims that the number of flu cases is increasing exponentially. On Monday, there were 8 flu cases reported. On Tuesday, there were 12 flu cases and on Wednesday there were 24 cases reported. On Thursday, there were 30 flu cases. Was the newspaper's claim of exponential increase accurate? Justify your response.

8, 12, 24, 30

$1.5 \neq 2$ ← $12 \div 8 = 1.5$ $30 \div 24 = 1.25$

$24 \div 12 = 2$

common ratio

NO, Not a Common Change

20. The first three terms of a geometric sequence are shown below. Write a recursive rule for this sequence.

216, 144, 96

$144 \div 216 = \frac{2}{3}$

① $a_1 = 216$

② $a_n = a_{n-1} \cdot \frac{2}{3}$

What is the next term of the sequence?

64