

Completing Sequences Given Consecutive Terms

Arithmetic - $d =$ difference of consecutive terms

1) $8, 21, 34, 47, 60$ $d = 60 - 47 = 13$
 $+13$ $+13$

2) $7, 3, -1, -5, -9, -13$ $d = 3 - 7 = -4$
 $d = -1 - 3 = -4$
 -4 -4

3) $0, \frac{2}{3}, \frac{4}{3}, 2, \frac{8}{3}$ $d = (\frac{8}{3}) - 2 = \frac{2}{3}$
 $+\frac{2}{3}$ $+\frac{2}{3}$

Two consecutive terms in an arithmetic sequence are given. Find the missing terms and the recursive function.

1) If $f(3) = 5$ and $f(4) = 8$... \leftarrow the fourth term is 8
the third term is 5
 $f(5) = 11$ $f(6) = 14$

$-1, 2, 5, 8, 11, 14$ $d = 8 - 5 = 3$
 -3 -3 $+3$ $+3$

Recursive: $f(1) = -1$
 $f(n) = f(n-1) + 3$

2) If $f(2) = 20$ and $f(3) = 12 \dots$

$$f(4) = \underline{4} \quad f(5) = \underline{-4}$$

$$\underline{28, 20, 12, 4, -4} \quad d = 12 - 20 = -8$$

$\overset{+8}{\curvearrowright}$ $\overset{-8}{\curvearrowright}$

Recursive: $f(1) = 28$

$$f(n) = f(n-1) - 8$$

Two consecutive terms in a geometric sequence are given. Find the missing terms and recursive equation.

1) If $f(3) = 5$ and $f(4) = 10 \dots$

$$f(5) = \underline{20} \quad f(6) = \underline{40}$$

$$r = \frac{10}{5} = 2$$

$$\underline{\frac{5}{4}, \frac{5}{2}, 5, 10, 20, 40}$$

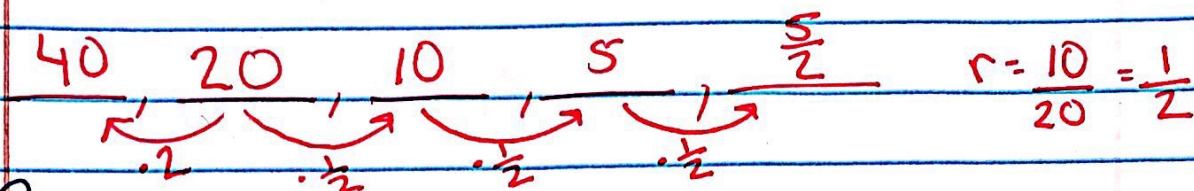
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Recursive: $f(1) = \frac{5}{4}$

$$f(n) = 2f(n-1)$$

2) If $f(2) = 20$ and $f(3) = 10 \dots$

$$f(4) = 5 \quad f(5) = \frac{5}{2}$$



Recursive:

$$f(1) = 40$$

$$f(n) = \frac{1}{2} f(n-1)$$