

Find the next three terms in each sequence.

1. 8, 40, 4, 60, 3, ...

2. 7, 11, 20, 45, ...

3. 9, -18, 54, -216, ...

4. 107, 101, 89, 71, ...

5. $-1, \frac{2}{3}, \frac{7}{3}, 4, \frac{17}{3}, \dots$

6. $-6, -2, 0, 1, \frac{3}{2}, \dots$

Find the next three terms in each sequence.

1. 8, 40, 4, 60, 3, ...

$$\begin{array}{ccccccc} 8 & & 40 & & 4 & & 60 & & 3 \\ & \swarrow & & \searrow & \swarrow & & \searrow & & \swarrow \\ & \times 5 & & \div 10 & \times 15 & & \div 20 & & \end{array}$$

alternate multiplying & dividing by next multiple of 5

Next 3
75, 2.5, 87.5

3. 9, -18, 34, -216, ...

multiply by the next neg #

Next 3: 1080, -6480, 45360

2. 7, 11, 20, 45, ...

add next perfect square

Next 3

81, 130, 194

4. 107, 101, 89, 71, ...

subtract next multiple of 6

Next 3: 47, 17, -19

5. -1, $\frac{2}{3}$, $\frac{7}{3}$, 4, $\frac{17}{3}$, ...

$$-\frac{3}{3}, \frac{2}{3}, \frac{7}{3}, \frac{12}{3}, \frac{17}{3}$$

increase numerator by 5
(add $\frac{5}{3}$)

Next 3: $\frac{22}{3}$, $\frac{27}{3}$, $\frac{32}{3}$

6. -6, -2, 0, 1, $\frac{3}{2}$, ...

what you're adding is half of the previous amount you added

Next 3:
 $\frac{3}{2}$, $\frac{7}{4}$, $\frac{15}{8}$, $\frac{31}{16}$

$\frac{3}{2} + \frac{1}{4} = \frac{6}{4} + \frac{1}{4} = \frac{7}{4}$
 $\frac{7}{4} + \frac{1}{8} = \frac{14}{8} + \frac{1}{8} = \frac{15}{8}$
 $\frac{15}{8} + \frac{1}{16} = \frac{30}{16} + \frac{1}{16} = \frac{31}{16}$