

COLLEGE ALGEBRA QUIZ

- (1) Find the 12th term of the arithmetic sequence.

$$\frac{2}{3}, 1, \frac{4}{3}, \dots$$

Solution: $\frac{13}{3}$

- (2) Find the 8th term of the arithmetic sequence.

$$x - y, x, x + y, \dots$$

Solution: $x + 6y$

- (3) Find the sum of the first 16 terms of the arithmetic sequence.

$$5, 8, 11, \dots$$

Solution: 440

- (4) Evaluate the sum of the first 478 natural numbers.

Solution: 114,481

- (5) Given the 1st term in an arithmetic sequence is 0.07, and the 17th term is 0.056. Find the 5th term.

Solution: 0.014

- (6) The 15th term in an arithmetic sequence is 46. The common difference is 3. Find the first term.

Solution: 4

- (7) A child receives 5¢ on the first day after his birth, 10¢ on the 2nd day, 15¢ on the 3rd day, and so on.

(a) How much will he receive on his first birthday (the 365th day)?

Solution: \$18.25

(b) What is the sum of all of these gifts by the time he is 18 years old?

Solution: \$60,115.50

- (8) Which of the following is the 27th term of the arithmetic sequence 7, 4, 1, -2, ...?

(a) -71

(b) 111

(c) -78

(d) 77

Solution: (a)

(9) Given the following arithmetic sequence, a_1, a_2, \dots, a_n , which of the following is NOT true?

(a) $\frac{1}{a_n}$ is still an arithmetic sequence, given that a_n is not constant.

(b) $|a_n|$ is still an arithmetic sequence, if and only if all values of a_n are either all positive or all negative .

(c) $a_n + 5$ is still an arithmetic sequence, given that a_n is not constant.

(d) $a_n \times 100$ is still an arithmetic sequence, given that a_n is not constant.

Solution: (a)

$\frac{1}{a_n}$ is would still be an arithmetic sequence, only if a_n IS constant.

(10) The zeros of this polynomial function form an arithmetic sequence. Find them.

$$f(x) = x^4 - 6x^3 - 9x^2 + 54x$$

Solution: $-3, 0, 3, 6$