

Math 11 October Test

Formulae:

Arithmetics:

$$t_n = a + (n - 1)d$$

$$S_n = \frac{n(a + t_n)}{2}$$

$$S_n = \frac{n}{2}[2a + (n - 1)d]$$

Geometrics

$$t_n = ar^{(n-1)}$$

$$S_n = \frac{a(1 - r^n)}{1 - r}$$

$$S_n = \frac{a}{1 - r}$$

Consider the following lists of numbers:

A) 3, 6, 12, 24, ...

B) 7 + 11 + 15 + 19 + ... + 91

C) 9, 3, 1, $\frac{1}{3}$, ...

D) $10 - 2 + \frac{2}{5} - \frac{2}{25}, \dots$

E) 7 + 14 + 28 + 56 + ... + 7168

F) 1, 2, 3, 4, ...

- 1) Determine if each groups of numbers are sequences or series, arithmetic or geometric.
- 2) For all series in lists A-C, find the sum to the 13th term
- 3) For all sequences in lists D-F, find the 9th term
- 4) Find the sum of list D as the terms continue

Calculate if needed, and express answer in simplest and rationalized form in radicals

5) $\sqrt{96}$

9) $\sqrt{2}(5\sqrt{2} + 3\sqrt{2})$

6) $\sqrt{27} + \sqrt{75}$

10) $4\sqrt[3]{5^2} \times 5^{\frac{6}{5}}$

7) $8\sqrt{5} + 9\sqrt{7}$

11) $6\sqrt{96} \div 2\sqrt{48}$

8) $\sqrt[3]{32}$

12) $\frac{10\sqrt{6}}{\sqrt{2}}$