

Unit 7 Review

Rewrite each series as a sum.

1) $\sum_{m=5}^8 m(m+2)$

2) $\sum_{n=1}^6 (4n^2 + 3)$

Evaluate each series.

3) $\sum_{m=1}^6 m(m+2)$

4) $\sum_{n=1}^6 (4n^2 + 1)$

Rewrite each series using sigma notation.

5) $1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6}$

6) $3 + 6 + 9 + 12 + 15 + 18$

Evaluate each arithmetic series described.

7) $a_1 = 3, a_n = 27, n = 5$

8) $a_1 = 9, a_n = 27, n = 7$

Evaluate each geometric series described.

9) $1 + 4 + 16 + 64\dots, n = 7$

10) $-1 - 4 - 16 - 64\dots, n = 8$

Evaluate each infinite geometric series described.

11) $-\frac{5}{6} - \frac{5}{18} - \frac{5}{54} - \frac{5}{162}\dots$

12) $-6 - 3 - \frac{3}{2} - \frac{3}{4}\dots$

13) Describe the changes on $f(x)$, if $f(x)$ is transformed to $-2f(x) - 3$

14) Describe the changes on $f(x)$, if $f(x)$ is transformed to $-f(2x) + 5$

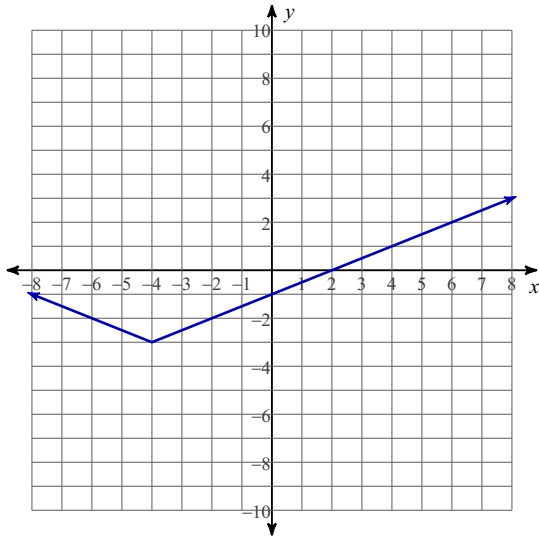
15) What is the average rate of change for the function $f(x) = 3(x + 4)^2 + 2$ over $[-2 \quad 5]$:

16) Solve the system of equations:
 $f(x) = 2 \log_5 x - 1$
 $g(x) = x^3 - 2x^2$

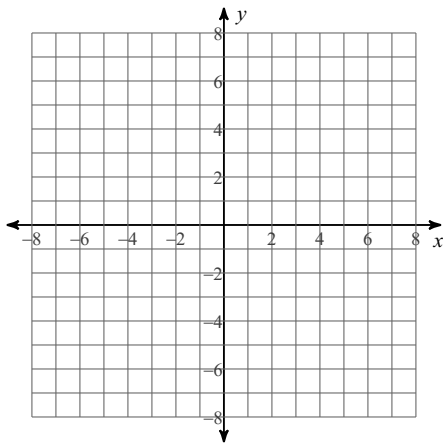
17) You have decided to reshingle a roof. The roof is 75 ft. x 40 ft. There is a chimney that you will need to go around with dimensions of 3 ft. x 7 ft. The size of a each shingle is 8 in. x 12 in. How many shingles will you need to complete the roof?

18) Lake Powell has a water surface of 254 square miles. How many fish would you have to stock in the lake in order for their fish population densities to be 800 fish per square mile?

19) What is the average rate of change for the function over $[-6 \quad 6]$:



20)



For $f(x) = x^3 - 3x^2 + 5$

- Graph the function:
- x-intercept(s): _____
- y-intercept(s): _____
- rel. maximum: _____
- rel. minimum: _____
- interval on increasing _____
- interval on decreasing _____
- interval on positive _____
- interval on negative _____
- end behavior: _____