

**Chapter  
11**

**Test Prep**

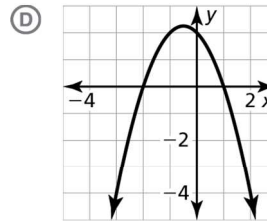
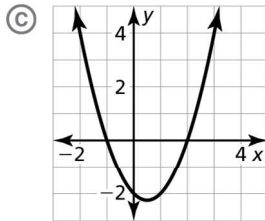
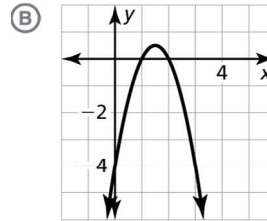
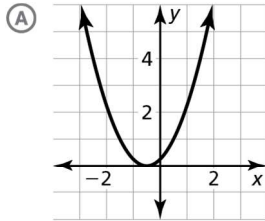
1. Write the series using summation notation.

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \cdots + \frac{1}{14}$$

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2. Which graph has  $x$ -intercepts that are equivalent to the roots of the equation

$$\left(x + \frac{1}{2}\right)^2 = \frac{9}{4}?$$



3. Evaluate  $\sec\left(-\frac{\pi}{3}\right)$  without using a calculator.

$\sec\left(-\frac{\pi}{3}\right) =$

-	-	-	-	-	-	-	-
/	/	/	/	/	/	/	/
•	•	•	•	•	•	•	•
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

# Chapter 11

## Test Prep (continued)

4. Select all the geometric sequences.

(A) 2, 4, 8, 16, ...

(B)  $\frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \dots$

(C) -20, -16, -12, -8, ...

(D)  $\frac{1}{2}, \frac{3}{2}, \frac{9}{2}, \frac{27}{2}, \dots$

(E)  $\frac{15}{8}, \frac{13}{8}, \frac{11}{8}, \frac{9}{8}, \dots$

(F) -1, 4, -16, 64, ...

5. Select all the exponential decay functions.

(A)  $f(x) = (1.75)^x$

(B)  $g(x) = 3e^{-x}$

(C)  $h(x) = \left(\frac{5}{3}\right)^x$

(D)  $j(x) = 0.5e^x$

(E)  $k(x) = 4^{-x/3}$

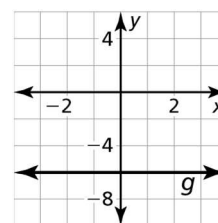
6. Which of the following correctly describes the transformation from the graph of the parent constant function to the graph of  $g$ ?

(A) The graph of  $g$  is a vertical translation 5 units down of the graph of the parent function.

(B) The graph of  $g$  is a vertical translation 6 units down of the graph of the parent function.

(C) The graph of  $g$  is a vertical translation 7 units down of the graph of the parent function.

(D) The graph of  $g$  is a vertical translation 8 units down of the graph of the parent function.



7. Simplify  $\sqrt[10]{\frac{n^{-1}p^{22}}{n^9p}}$ .

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8. One term of an arithmetic sequence is  $a_9 = 25$ . The common difference is 4. What is another term of the sequence?

(A)  $a_2 = 19$

(B)  $a_{18} = 61$

(C)  $a_{20} = -19$

(D)  $a_{23} = -153$

# Chapter 11

## Test Prep (continued)

9. A greenhouse has 2000 succulents. Each year, 60% of the succulents are sold and 300 seedlings are planted. How many succulents does the greenhouse have at the start of the fourth year?

								succulents
-	-	-	-	-	-	-	-	
/	/	/	/	/	/	/	/	
.	.	.	.	.	.	.	.	
0	0	0	0	0	0	0	0	
1	1	1	1	1	1	1	1	
2	2	2	2	2	2	2	2	
3	3	3	3	3	3	3	3	
4	4	4	4	4	4	4	4	
5	5	5	5	5	5	5	5	
6	6	6	6	6	6	6	6	
7	7	7	7	7	7	7	7	
8	8	8	8	8	8	8	8	
9	9	9	9	9	9	9	9	

10. A company determines that the demand  $d$  for one of its products varies inversely with the price  $p$  of the product. When the price is \$6.50, the demand is 910 units. When the demand is 845 units, what is the price of the product?

\$							
-	-	-	-	-	-	-	-
/	/	/	/	/	/	/	/
.	.	.	.	.	.	.	.
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

11. Which of the following series does *not* have a sum that is equal to the sum of

$$\sum_{i=1}^4 0.4(2)^{i-1}?$$

(A)  $\sum_{i=1}^{\infty} -3\left(\frac{1}{2}\right)^{i-1}$

(B)  $\sum_{i=1}^{\infty} 5\left(\frac{1}{6}\right)^{i-1}$

(C)  $\sum_{i=1}^{\infty} 2\left(\frac{2}{3}\right)^{i-1}$

(D)  $\sum_{i=1}^{\infty} 4\left(\frac{1}{3}\right)^{i-1}$

12. Consider the function  $f(x) = x^4 - 2x^3 - 15x^2$ .

For what value of  $k$  does  $\frac{f(x)}{x - k}$  have a remainder *not* equal to 0?

(A) -3

(B) 0

(C) 3

(D) 5

Chapter  
11

Test Prep (continued)

13. What is the 754th term of the sequence whose first term is  $a_1 = 0.001$  and whose  $n$ th term is  $a_n = 1.02a_{n-1}$ ?

- (A) 0
- (B) 768.1
- (C) 2991.8
- (D) 3051.6

14. A survey asks juniors and seniors whether they will attend a school dance. The two-way table shows the results. What is the probability that a randomly selected student from the survey is a junior who is not attending the dance?

		Attending	
		Yes	No
Class	Junior	76	35
	Senior	63	26

- (A) 38%
- (B) about 31.5%
- (C) 30.5%
- (D) 17.5%

15. You post a link to a video on your social network page. Eight of your friends repost the link, then eight of each of their friends repost the link, and so on. What is the total number of people who reposted the link after the fifth round?

								people
−	−	−	−	−	−	−	−	
/	/	/	/	/	/	/	/	
•	•	•	•	•	•	•	•	
0	0	0	0	0	0	0	0	
1	1	1	1	1	1	1	1	
2	2	2	2	2	2	2	2	
3	3	3	3	3	3	3	3	
4	4	4	4	4	4	4	4	
5	5	5	5	5	5	5	5	
6	6	6	6	6	6	6	6	
7	7	7	7	7	7	7	7	
8	8	8	8	8	8	8	8	
9	9	9	9	9	9	9	9	

16. What is the value of  $n$ ?

$$\sum_{i=1}^n (-3i + 8) = -203$$

$n =$

−	−	−	−	−	−	−	−
/	/	/	/	/	/	/	/
•	•	•	•	•	•	•	•
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9