

Chapter 11 Cumulative Review

Multiple Choice

For Exercises 1–12, choose the correct letter.

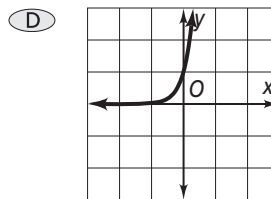
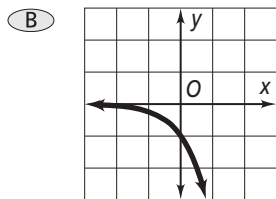
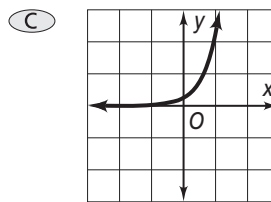
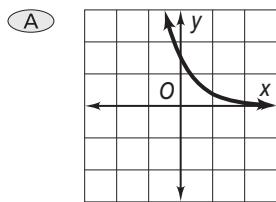
1. Which is equivalent to ${}_6C_3$?

- (A) $\frac{6!}{3!(6-3)!}$ (B) $\frac{6!}{(6-3)!}$ (C) $\frac{6!}{9!}$ (D) $\frac{3!}{6!(6-3)!}$

2. Solve $(x + 7)(x - 5) = 0$.

- (F) $x = 7$ or $x = 5$ (H) $x = 7$ or $x = -5$
 (G) $x = -7$ or $x = 5$ (I) $x = -7$ or $x = -5$

3. Which graph best models exponential decay?



4. Which of these is the equation of a hyperbola with foci at $(5, 0)$ and $(-5, 0)$?

- (F) $\frac{x^2}{9} - \frac{y^2}{16} = 1$ (G) $\frac{x^2}{5} - \frac{y^2}{5} = 1$ (H) $\frac{y^2}{5} - \frac{x^2}{5} = 1$ (I) $\frac{y^2}{9} - \frac{x^2}{16} = 1$

5. Divide $2x^2 - 14x + 24$ by $(x - 4)$.

- (A) $x - 6$ (B) $-2x + 6$ (C) $2x - 6$ (D) $2x + 6$

6. Which of these parabolas opens to the left?

- (F) $y = 4x^2$ (G) $x = 3y^2$ (H) $y = -6x^2$ (I) $x = -2y^2$

7. Simplify $\frac{x-3}{x^2+3x-18}$.

- (A) $\frac{1}{x-6}$ (B) $\frac{1}{x+6}$ (C) $\frac{1}{6-x}$ (D) 0

8. A and B are two independent events. $P(A) = \frac{1}{5}$ and $P(B) = \frac{3}{10}$.
What is $P(A \text{ and } B)$?

- (F) $\frac{1}{10}$ (G) $\frac{1}{2}$ (H) $\frac{3}{50}$ (I) $\frac{4}{15}$

Chapter 11 Cumulative Review (continued)

9. Which is the median of this data set: 23 24 22 45 27 18 23 30?

- (A) 23 (B) 23.5 (C) 26.5 (D) 27

10. Which value is the smallest?

- (F) $\log_{12} 12$ (G) $\log_{15} 1$ (H) $\log_3 9$ (I) $\log_2 64$

11. Which of the following is the sum of series $\sum_{n=1}^4 (-2)^{n-1}$?

- (A) -5 (B) -1 (C) -3 (D) 15

12. Which is the solution to $\sqrt{3x - 5} + 4 = 0$?

- (F) 0 (G) No solution (H) $\frac{7}{3}$ (I) 7

Short Response

13. Find the slope of a line perpendicular to $y = 3x + 2$. Show your work.

14. Solve $5x^2 - 7 = 18$.

Extended Response

15. The heights of dogs at the City Animal Shelter are distributed normally, with a mean of 25.4 in. and a standard deviation of 4.8 in.
- Sketch a normal curve and divide the area under the curve into sections that are one, two, and three standard deviations from the mean.
 - Of the 73 dogs at the shelter, what percent of dogs would you expect to be less than 20.6 in. tall?
 - The shelter has one dog that is 40 in. tall. Would you consider this height to be an outlier? Explain.