

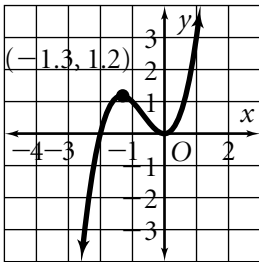
# Chapter Practice

## Chapter 6

For Exercises 1–9, choose the correct letter.

- Which statement is *not* true?
  - $y = x^2$  is an even function.
  - A power function can be both even and odd.
  - $y = x$  is an odd function.
  - $y = 3|x|$  is an even function.
  - An odd function has the origin as the point of symmetry.
- Which polynomial function is in standard form?
  - $P(x) = x^3 + 2x^2 + 3$
  - $P(x) = 4 - x^2$
  - $P(x) = (x - 3)(x + 2)$
  - $P(x) = \sqrt{x} + 2x^3 - x$
  - $P(x) = 2x^3 + 4x^2 + 7x - 3x^3 - 2x^2$

- What is the point  $(-1.3, 1.2)$  of this graph called?



- relative minimum
  - turning radius
  - factor
  - relative maximum
  - zero
- What are the solutions of  $2x^3 + 10x^2 + 12x = 0$ ?
 

A 2, 10, 12	B 0, 3
C 0, -2, -3	D 0, 2, 3
E -1, 0, 6	

- The number of combinations of  $n$  objects of a set chosen  $r$  objects at a time is given by which formula?
 

A $\frac{n}{r(n-r)}$	B $\frac{n!}{r(n-r)!}$
C $\frac{r!}{n!(n-r)!}$	D $\frac{n!}{r!(n-r)!}$

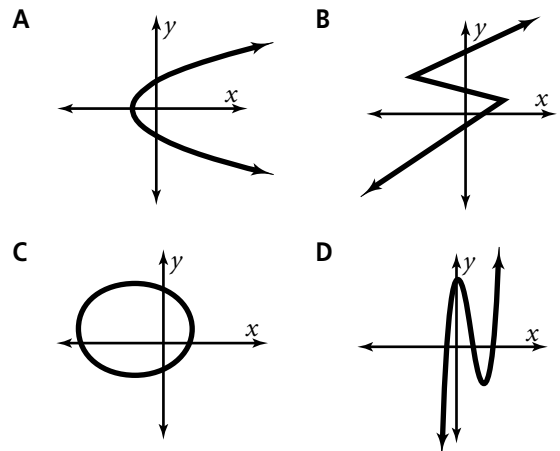
E none of the above

- What is the expansion of  $(d^2 + e^3)^3$ ?
  - $d^3 + 3d^2e + 3de^2 + e^3$
  - $d^6 + 3d^4e^3 + 3d^2e^5 + e^6$
  - $d^5 + 3d^4e^4 + 3d^2e^5 + e^6$
  - $d^6 + 3d^4e^3 + 3d^2e^6 + e^9$
  - none of the above

- In how many ways can the letters of the word *COUNT* be arranged using only three of the letters at a time?
 

A 60	B 240
C 80	D 50
E 120	

- Which of the following is the graph of a function?



9. Which polynomial has zeros at 1, 2, and 4?

- A  $(x + 1)(x + 2)(x + 4) = 0$   
 B  $x^2 - 3x + 2 = 0$   
 C  $x^3 - 7x^2 + 14x - 8 = 0$   
 D  $x^3 - 7x^2 - 10x + 8 = 0$

For Exercises 10–13, compare the values in Column A and Column B. Choose the best answer.

- A The value in Column A is greater.  
 B The value in Column B is greater.  
 C The two values are equal.  
 D The relationship cannot be determined on the basis of the information supplied.

**Column A**

**Column B**

- |     |  |  |
|-----|--|--|
| 10. | number of $x$ -intercepts of the graph of $y = x^3 - 3x^2$   | number of $x$ -intercepts of the graph of $y = \frac{1}{2}x^3$ |
| 11. | number of complex zeros in a polynomial function of degree 4 | number of multiple zeros in a polynomial function of degree 4  |
| 12. | ${}_5C_2$  | ${}_6C_3$  |
| 13. | the third coefficient in the expansion of $(a + b)^4$        | the second coefficient in the expansion of $(a + b)^5$         |

For Exercises 14–22, write your answer.

14. Write a polynomial function in standard form with zeros at  $-3$ ,  $1$ , and  $6$ .
15. Graph the function  $y = x^3 - 4x^2 - x + 4$ .
16. Solve  $12x^3 - 2x^2 - 2x = 0$  by factoring.
17. Use synthetic division to divide  $x^3 + 5x^2 + 2x - 8$  by  $x + 2$ .
18. Use Pascal's triangle to expand  $(x + 4y)^4$ .

19. **Open-ended** Write a cubic binomial polynomial function.

20. Use the rational root theorem to help solve the equation  $2x^3 + 6x^2 - 4x - 12 = 0$ .

21. Find the real zero of  $y = 3x^3 - 16x^2 - 9x - 18$ .

22. There are 15 azalea plants at the garden center. You can buy up to four plants on sale. In how many ways can you buy four or fewer azaleas?