第一讲巩固练习

奇偶数相关：

1. If x is an integer, and $3x^2$ is even, then which of the following must be true?

   (A) $x + 3$ is even
   (B) $x^2 - 1$ is even
   (C) $x + 4$ is even
   (D) $\frac{x}{2}$ is even
   (E) $\frac{x}{2}$ is odd

2. If $-x/7$ is even, then which of the following must be true?

   (A) x is odd
   (B) x is even
   (C) x is negative
   (D) x is positive
   (E) x is a prime number

For Questions 3 to 6, indicate all of the answer choices that apply.

3. If x and y are integers, and $x^2 - y^2$ is even, then which of the following must be true?

   [A] $x - y$ is even
   [B] $x + y$ is even
   [C] $(x + y)^2$ is even
   [D] xy is even
   [E] $\frac{x}{y}$ is even
   [F] $x^2 - xy$ is even

4. If x is an even integer, then which of the following must be true?

   [A] $x^2 + 2$ is even
   [B] $\frac{x}{2}$ is even
   [C] $\frac{4}{x}$ is even
   [D] x^7 is even
   [E] x^2 is a multiple of 4

5. If x and y are both integers and $x(y+3)$ is odd, then which of the following must be true?

[A] x is even
[B] y is even
[C] xy is odd
[D] xy is even
[E] x is odd
[F] y is odd

6. If a, b, and c are positive integers, $a + b = 12$, and $bc = 15$, then which of the following must be true?

[A] $b + c$ is even
[B] ab is even
[C] ac is odd
[D] $a - c$ is even
[E] abc is odd

正负整数相关：

1. If $a < b < 0$, then which of the following must be true?

(A) $ab < 0$
(B) $a + b > 0$
(C) $\frac{a}{b} < 0$
(D) $b - a > 0$
(E) $a - b > 0$

2. If $xy > 0$ and $yz < 0$, then which of the following must be negative?

(A) xyz
(B) xy^2z
(C) x^2y^2z
(D) $x^2y^2z^2$
(E) $\frac{xy}{z}$

3. If $ab^2 > 0$ and $ac < 0$, then which of the following must be true? (Indicate all the apply.)

   A $ab > 0$
   B $b > 0$
   C $\frac{a}{c} < 0$
   D $b^2c < 0$
   E $a(c^2) > 0$

4. If $0 > x > y$, then which of the following must be true? (Indicate all that apply.)

   A $x^2 - y^2 < 0$
   B $y - x < 0$
   C $\frac{1}{x^2} < 1$
   D $\frac{x+y}{x} > 0$
   E $y^2 - x^2 < 0$

5. If $\frac{x-a}{z^2+1} > 0$, then which of the following must be true?

   A $x > 0$
   B $x < a$
   C $x > a$
   D $xa > 0$
   E $x + a > 0$

6. If $xy > 0$ and $x + y > 0$, then which of the following must be true? (Indicate all that apply.)

   A $x < 0$
   B $|x| > |y|$
   C $x > 0$
   D $\frac{x}{y} > 0$
   E $y > 0$

7. $0 > a > b$

QUANTITY A	QUANTITY B	
a^2	b^4	A B C D

8. $|x| > |y|$

QUANTITY A	QUANTITY B	
x^2	y^2	A B C D

9. a and b do not equal zero

QUANTITY A	QUANTITY B	
$-(a^2)(b^4)$	$(-a)^2(-b)^4$	A B C D

10. $\frac{a}{b} = 4$

QUANTITY A	QUANTITY B	
a	b	A B C D

11. $\frac{a}{b} > 0$

QUANTITY A	QUANTITY B	
ab	0	A B C D

12. $p^2q^3 > 0$
$p^3q^2 > 0$

QUANTITY A	QUANTITY B	
pq	0	A B C D

13. $a^2b^3c^5 > 0$
$a^3b^4c^5 < 0$

QUANTITY A	QUANTITY B	
ab	0	A B C D