算术（上）-课后练习册

1. Integer x and y which have the same tens digits. The sum of x and y is 87, and x<y (x and y are positive integers). How many distinct pairs of x and y satisfy the above rule?

4

2. In a store, price of small-sized coffee beans is $k per bag, while price of larger coffee beans is $m per bag. If someone buys four bags of coffee beans in the store at a price of $30 in total, then k and m could be?

Indicate ***all*** such possible combinations.

A. k=7 and m=8

B. k=5 and m=10

C. k=5 and m=15

D. k=8 and m=20

E. k=10 and m=20

3. At most how many integers less than 25 could be the sum of the positive multiple of 4 and the positive multiple of 5?

A. 7

B. 8

C. 9

D. 10

E. 11

4. When selecting four different integers from -5 to 4, inclusive, what is the least possible product of these four numbers?

-240

5. If the sum of 11 consecutive integers is 22, then what's the least of the list of numbers?

A. -6 $\frac{11(-6+4)}{2} = -11$

B. -5 $\frac{11\cdot(-5+5)}{2} = 0$

C. -3 $\frac{11\cdot(-3+7)}{2} = 22$

D. -2

E. -1

22

x ··· y

11 consecutive

-6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4 ✗

$\frac{n(a_1+a_n)}{2}$

6. The sum of n consecutive integers is 30

Quantity A: n

Quantity B: 4

1+2+3+4+5

n也可以是 9, 10, 11

A. Quantity A is greater.

B. Quantity B is greater.

C. The two quantities are equal.

(D) The relationship cannot be determined from the information given.

7. The average of n consecutive integers is 0 ↙ 分数得0一定分子是0

Quantity A: The sum of the greatest and least value of the n consecutive integers 0

Quantity B: The sum of all the n consecutive integers 0

A. Quantity A is greater.

B. Quantity B is greater.

(C) The two quantities are equal.

D. The relationship cannot be determined from the information given.

8. For positive integers X and Y, whose product is 24, which of following statements ***MUST*** be true?

Indicate ***all*** such statements.

$x\cdot y = 24$

A. x+y<24 1·24

(B) If one is odd, the other one must be even ✓ 3·8

C. (12/y) is an integer ✗

9. $y=4x^2+5x+7$ where y is an odd, which of the following is true about x?

A. x is odd

B. x is even

C. x is positive odd

D. x is positive even

E. Cannot be determined

y = odd

if x odd,
x^2 is odd } 4·odd = even } odd
5·x is odd + odd } + 7 = even

x even
x^2 even } even
5·x even } + odd = odd

10. Which of the following CANNOT be the value of $k+k^2$ where k is a positive integer?

A. A multiple of 10 → even } could be
B. A multiple of 12 → even }
C. A number with the units digit as 5 → X odd
D. A number such that the sum of units digit and tens digit is 9 could be
E. A number with tens digit as 4

k(1+k)
odd even

11. m is a positive integer and 5m+9 is divisible by 4, which of the following must be an odd?

Indicate ***all*** such items.

A. (m+2) (m+4) = odd (odd odd)
B. 3-m = ~~even~~ 0是 even
C. 3+m = odd + odd = even
D. m^3+9 = even

$\frac{5m+9}{4}$ ↙ even
$\frac{5m+9}{4}$ = int
5m = odd
m = odd
15+9 = 24
4

12. X and y are both integers from 1 to 10, inclusive, and Set S consists of all the possible products of x*y.

Quantity A: The number of odd integers in Set S

Quantity B: The number of even integers in Set S

A. Quantity A is greater.
B. Quantity B is greater.
C. The two quantities are equal.
D. The relationship cannot be determined from the information given.

[1-10] S [Possible]
P(x is odd) = 0.5 even = 0.5
y is odd = 0.5 even = 0.5
∵ only odd times odd give odd
0.5 · 0.5 = 0.25

13. **Quantity A:** Among all the consecutive integers from 1 to 50, the difference between the sum of all even numbers and the sum of all odd numbers

Quantity B: 25

A. Quantity A is greater.

B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

14. Which of the following CANNOT be the sum of six consecutive odd integers?

A. -24

B. 42

C. 36

D. 96

E. 120

15. a and b are positive integers and ab=24

Quantity A: a^2b

Quantity B: 192

A. Quantity A is greater.

B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

16. n, s and t are all positive integers

If n is a multiple of 7 and $n=s^2t$, which of the following must be a multiple of 49?

A. s

B. t

C. st^2

D. s^2t

E. s^2t^2