1. If a² = 12, then a4 =

- ○ A. 144
- ○ B. 72
- ○ C. 36
- ○ D. 24
- ○ E. 16

2. If n is even, which of the following cannot be odd?

Select all that apply.

- ☐ A. n + 3
- ☐ B. 3n
- ☐ C. n² - 1
- ☐ D. 2(n + 3)

3. One side of a triangle has length 8 and a second side has length 5. Which of the following could be the area of the triangle?

Select ALL that apply.

- ☐ A. 24
- ☐ B. 20
- ☐ C. 5

4. A certain animal in the zoo has consumed 39 pounds of food in six days. If it continues to eat at the same rate, in how many more days will its total consumption be 91 pounds?

- ○ A. 12
- ○ B. 11
- ○ C. 10
- ○ D. 9
- ○ E. 8

5. A perfect cube is an integer whose cube root is an integer. For example, 27, 64 and 125 are perfect cubes. If p and q are perfect cubes, which of the following will not necessarily be a perfect cube?

- ○ A. 8p
- ○ B. pq
- ○ C. pq + 27
- ○ D. -p
- ○ E. (p - q)6

6. Half the people on a bus get off at each stop after the first, and no one gets on after the first stop. If only one person gets off at stop number 7, how many people got on at the first stop?

A. 128

B. 64

C. 32

D. 16

E. 8

7. n is an integer chosen at random from the set

{5, 7, 9, 11 }

p is chosen at random from the set

{2, 6, 10, 14, 18}

What is the probability that n + p = 23 ?

A. 0.1

B. 0.2

C. 0.25

D. 0.3

E. 0.4

8. A dress on sale in a shop is marked at $D. During the discount sale its price is reduced by 15%. Staff are allowed a further 10% reduction on the discounted price. If a staff member buys the dress what will she have to pay in terms of D ?
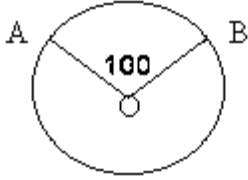
A. 0.75D

B. 0.76D

C. 0.765D

D. 0.775D

E. 0.805D

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9. All the dots in the array are 2 units apart vertically and horizontally. What is the length of the longest line segment that can be drawn joining any two points in the array without passing through any other point ?

A. 2

B. 2√2

C. 3

○ D. √10

○ E. √20

10. If the radius of the circle with centre O is 7 and the measure of angle AOB is 100, what is the best approximation to the length of arc AB ?

○ A. 9

○ B. 10

○ C. 11

○ D. 12

○ E. 13

Answer Key

1.   A

2.   BD

3.   BC

4.   E

5.   C

6.   B

7.   A

8.   C

9.   E

10.   D