

## Indices iRA / tRA

### Question 1

Which one of these has the same value as  $12 \times 3$  ?

$$10 + 3 + 2$$

A

$$10 \times 3 + 2$$

B

$$10 \times 3 + 3$$

C

$$10 \times 3 + 6$$

D

### Question 2

Another way of writing  $6^2$  is

$$6 \times 2$$

A

$$6 \times 6$$

B

$$6 + 6$$

C

$$2 \times 2 \times 2 \times 2 \times 2 \times 2$$

D

### Question 3

Which one of these is closest to the square root of 90?

45

A

10

B

9

C

8

D

### Question 4

Which statement is NOT true?

(A)   $a^6 \div a^3 = a^2$

(B)   $a^6 \times a^3 = a^9$

(C)   $(a^6)^3 = (a^3)^6$

(D)   $a^0 = 1$

Question 5

Simplify  $2^2 \times 2^3$ .

(A)  $\bigcirc 2^5$

(B)  $\bigcirc 2^6$

(C)  $\bigcirc 4^5$

(D)  $\bigcirc 4^6$

Question 6

The value of a variable,  $k$ , is tripled and the result is then squared.  
Which one of these expressions is correct?

$\sqrt{3k}$

A

$3k^2$

B

$\sqrt{3k}$

C

$9k^2$

D

Question 7

**82, 8.2,  $8^2$ , (8 x 2)**

Which of the lists below shows this set of numbers arranged in order from **smallest** to **biggest**?

A 8.2, (8 x 2), 82,  $8^2$

B 8.2,  $8^2$ , (8 x 2), 82

C 82,  $8^2$ , (8 x 2), 8.2

D 8.2, (8 x 2),  $8^2$ , 82

**Question 8**

$$1^3 + 2^3 + 3^3 + 4^3 + 5^3 =$$

A 225

B 625

C 500

D 525

**Question 9**

$$3^3 \times 3^2 = \boxed{?}$$

A 243

B 51

C 72

D 27

**Question 10**

$$2^2 \times 3^3 = \boxed{?}$$

A 31

B 36

C 35

D 108

**Question 11**

Evaluate  $ab^2$  given  $a = 2$  and  $b = -3$ .

(A)  -36

(B)  -18

(C)  18

(D)  36

**Question 12**

Which of these expressions is equivalent to  $3mn^2$ ?

(A)  $\bigcirc 3 \times m \times n \times n$

(B)  $\bigcirc 3 \times m \times n \times 2$

(C)  $\bigcirc 3 \times m \times n \times m \times n$

(D)  $\bigcirc 3 \times m \times n \times 3 \times m \times n$

**Question 13**

Some powers of 7 are listed below.

$7^2 = 49$

$7^3 = 343$

$7^4 = 2401$

$7^6 = 117649$

$7^{12} = 13841287201$

It follows that 13841287201 can **also** be expressed as

A  $343^4$

B  $117649^6$

C  $343 \times 2401$

D  $49 \times 117649$

**Question 14**

In the formula  $F = (a - 7)^3$ , what is the value of  $F$  when  $a = 2$ ?

A -125

B -15

C 75

D 125

**Question 15**

The number of particles in the universe was estimated by one scientist to be  $34^{56}$ .

Which of these numbers is equal to  $34^{56}$ ?

A  $(34^{50})^6$

B  $34^{50} + 34^6$

C  $30^{56} \times 4^{56}$

D  $2^{56} \times 17^{56}$