

GRE Algebra Practice Paper 2

Question 1

Solve for x .

$$\frac{1}{4} = 256$$

Possible Answers:

−4

256

$\frac{1}{4}$

4

$-\frac{1}{4}$

Question 2

Solve for x .

$$3^x = \frac{1}{9}$$

Possible Answers:

2

3

$-\frac{1}{2}$

−2

$\frac{1}{2}$

Question 3

Solve for x .

$$2^x = 32$$

Possible Answers:

5

4

6

8

7

Question 4

Compare 3^6 and 27^2 .

Possible Answers:

The relationship cannot be determined from the information given.

$$3^6 < 27^2$$

$$3^6 = 27^2$$

$$3^6 > 27^2$$

Question 5

find x

$$8^x = 2^{x+6}$$

Possible Answers:

2 or -1

-1

2

4

3

Question 6

If m and n are both rational numbers and $4^m = 8^n$, what is $\frac{m}{n}$?

Possible Answers:

$\frac{3}{2}$

$\frac{4}{1}$

$\frac{5}{3}$

$\frac{2}{1}$

Question 7

Quantity A: $4^5 * 4^{-3}$

Quantity B: $\frac{4^5}{4^{-3}}$

Possible Answers:

The two quantities are equal.

The relationship cannot be determined from the information given.

Quantity B is greater.

Quantity A is greater.

Question 8

Simplify the following:

$$\frac{25^{44} - 5^{86}}{12}$$

Possible Answers:

$$2 * 5^{23}$$

$$\frac{25^2}{24}$$

$$\frac{4}{5^2}$$

$$12 * 5^2$$

$$2 * 5^{86}$$

Question 9

Simplify the following:

$$\frac{48^{50} + 80^{30}}{4^{20}}$$

Possible Answers:

$$17^{90}$$

$$4^{16} * 3^{25} + 2^{20} * 5^{15}$$

$$12^{30} + 5^{10}$$

$$2^{160} * 3^{50} + 2^{80} * 5^{30}$$

$$17^{90}$$

Question 10

If one mile is equal to 5,280 feet, how many feet are 100 miles equal to in scientific notation?

Possible Answers:

$$.528 \times 10^6$$

$$5280 \times 10^2$$

528,000

$$528 \times 10^3$$

$$5.28 \times 10^5$$

Question 11

Solve the following expression, $(x - 2)^2$.

Possible Answers:

$$x^2 + 4x + 4$$

$$x^2 - 4x - 4$$

$$x^2 + 4$$

$$x^2 - 2$$

$$x^2 - 4x + 4$$

Question 12

Quantity A: $\frac{x^2 + 5x - 14}{x - 2}$

Quantity B: $x + 7$

Possible Answers:

Quantity A is greater.

The relationship cannot be determined.

Quantity B is greater.

The two quantities are equal.

Question 13

$$x < 0$$

$$y > |x|$$

$$\text{Quantity A: } (x + y)^3$$

$$\text{Quantity B: } x^3 + y^3$$

Possible Answers:

Quantity A is greater.

The relationship cannot be determined.

The two quantities are equal.

Quantity B is greater.

Question 14

$$x < 0$$

$$y > 0$$

$$\text{Quantity A: } (x + y)^3$$

$$\text{Quantity B: } x^3 + y^3$$

Possible Answers:

The two quantities are equal.

Quantity A is greater.

The relationship cannot be determined.

Quantity B is greater.

Question 15

Expand the function:

$$(xy^3 + x^2y)(xy - x^3y^2)$$

Possible Answers:

$$x^5y^3 - x^4y^5 + x^3y^2 + x^2y^4$$

$$-x^5y^3 - x^4y^5 - x^3y^2 - x^2y^4$$

$$x^5y^3 + x^4y^5 + x^3y^2 + x^2y^4$$

$$-x^5y^3 - x^4y^5 - x^3y^2 + x^2y^4$$

$$-x^5y^3 - x^4y^5 + x^3y^2 + x^2y^4$$

Question 16

$$x < 0$$

$$y < 0$$

$$\text{Quantity A: } (x + y)^2$$

$$\text{Quantity B: } x^2 + 4xy + y^2$$

Possible Answers:

Quantity A is greater.

The two quantities are equal.

Quantity B is greater.

The relationship cannot be determined.

Question 17

$$(x + 3y)(x - 3y) = 8$$

Quantity A: $x^2 - 9y^2$

Quantity B: 16

Possible Answers:

Quantity B is greater.

The two quantities are equal.

Quantity A is greater.

The relationship cannot be determined from the information given.

Question 18

Quantity A: $2^2 + 3^2$

Quantity B: $(2 + 3)^2$

Possible Answers:

Quantity B is greater.

The two quantities are equal.

Quantity A is greater.

The relationship cannot be determined from the information given.

Question 19

Expand the following equation:

$$(x^3 - 3)(x + 7)$$

Possible Answers:

$$x^4 + 7x^3 - 3x - 21$$

$$x^4 - 4x - 21$$

$$x^2 + 14x - 21$$

$$x^2 + 4x + 21$$

$$x^2 - 21$$

Question 20

What is the value of t if: $3x^2 + tx - 21 = (3x - 3)(x + 7)$?

Possible Answers:

-18

24

21

-3

18