12 Quantitative Comparison

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$15(0)(2n+y)$

0

QUANTITATIVE COMPARISONS

Question of this type gives you two quantities listed in two columns, A and B, for some items, information concerning, one or both of the compared quantities will be centered between the two columns. You are to decide which quantity. If any, is the greater of the two. If A is greater choose answer A. If B is greater, answer B, if they are equal, choose answer C, if there isn't enough information to tell, choose answer D. In contrast to the other questions on the examination, which have five possible choices for answers, these questions have only four possible choices.

Always remember that if you are doing lengthy written work in finding an answer, there must be an easier way. No problems should involve multiplication or division with large numbers.

1.	Column A	Column B
	$\frac{17}{(462)(8)}$	$\frac{19}{(231)(16)}$

Explanation

The denominators of both fractions are equal, and 19 > 17, Therefore, B is the greater fraction.

2.	$x > 0, y > 0, z = 0$	
	Column A	**Column B**
	$15z\ (2x + y)$	$9x(z + 5y)$

Explanation

If z = 0, then 15z = 0 and the product of the factors in column A is 0. In column B, the product will be (3x)(5y), which is positive. Therefore, B is greater.

3.	$x < 0, y > 0, z = 0$	
	Column A	**Column B**
	$3z\ (2x + 5y)$	$3x(2z + 5y)$

Explanation Again, the product of the factors in column A will be 0, since $3z = 0$. In column B, 3x will be negative, 5y will be positive, so their product will be a negative number. A is greater.

4.	$x^2 = 81$ $y^2 = 64$	
	Column A	**Column B**
	x	y

Explanation

If $x^2 = 81$=, x may be 9 or -9. If $y^2 = 64$, y may be 8 or -8. If x is 9 white y is 8, x will be greater. But if x is -9 while y is -8, y will be greater. Therefore, correct answer is (D).

5.	**Column A**	**Column B**
	x^3	x^2

Explanation

If x is greater than 1, A is greater. If ix is a fraction between 0 and 1, or any negative number B, is greater if x is 0 or 1, both A and B are equal. Therefore, the correct answer is (D).

$$1 < x < 3$$

$$1 < y < 99$$

6.	**Column A**	**Column B**
	x	y

Explanation

If x and y are both 2, A and B are equal. If x is $2\frac{1}{2}$ and y is 2, A is greater, If x is 2 and y is 17, B is greater, again, the correct answer is (D).

Solved Exercise

Directions: Each of the following questions consists of two quantities in boxes, on in Column A and one in Column B. You are to compare the two quantities and write the correct answer next to the question number.

A if the quantity in Column A is greater;

B if the quantity in Column B is greater;

C if the two quantities are equal;

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

The answers and explanation of each question has been given at the bottom of the question.

Note:

In some questions, information is given about one or both of the quantities to be compared. In such cases, the given information is centered above the two columns.

In a given question, a symbol that appears in both columns represents the same thing in Column A as it does in Column B.

Letters such as x, n and k stand for real numbers.

1.

	x, y and z are positive x + y + z = 10 and x = y
x	5

Explanation

The best response is B.

Let's say x = 4. Since x = y, that means y = 4. As x + y + z = 10, so z = 2. Column B can be greater.

If x = 5, then y = 5 and z = 0; that's no good, z has to be positive. If x = 6, then y = 6 and z = -2. That doesn't work either. Column B has to be greater.

2.

The number of distinct prime factors of 30	The number of distinct prime factors of 60

Explanation

The right response is C.

Prime factors of 30 = 2 × 3 × 5

Prime factors of 60 = 2 × 2 × 3 × 5

Distinct prime factors are equal.

3.

x^2	$(x + 1)^2$

Explanation

The best response is D.

For positive numbers B is greater and for negative numbers A is greater.

4.

	x = 3
$\frac{x}{10}$	$\frac{x}{100}$

Explanation

The best response is A.

$\frac{3}{10}$ = .3 and $\frac{3}{100}$ = .03. Since .3 is greater than .03m Column A is greater

5.

The average of 1,199 and 700	The average of 10,90 and 800

Explanation

The best response is C.

In Column A, the sum of the numbers is 900. There are three numbers, so you need to divide 900 by 3, which gives you an average of 300. For Column B, the sum of the numbers is also 900, and there are also three numbers, so the average must be the same.

6.	$-3 < z < 0$	
	$3 - z$	$z - 3$

Explanation

The best response is A.

You need to plug in numbers for z that are between -3 and 0. If z = -2, then Column A is 5 and Column B is -5. Since Column A is bigger, you can cross out choices B and C. Now plug in a weird number. If z = -1.5, then Column A is 4.5 and Column B is negative -4.5. Since Column A is still greater and this is an easy question, you can be sure that A is the answer.

7.	Line segments FG and JK interest at point X such that $FX = \frac{1}{2} GX$	
	JX	$\frac{1}{2} KX$

Explanation

The best response is D.

The question tells you how JK divides up FG, since it says $FX = \frac{1}{2} GX$. But you have no idea how JK itself gets divided up when the two lines cross. JX might equal $\frac{1}{2} KX$, or maybe not. So the answer must be D.

8.	A is the average of two consecutive positive even integers and K = 2A.	
	The remainder when K is divided by 2	1

Explanation

The best response is B.

Since 2A is even so K is divisible by 2 giving remainder zero.

9.	10% of P is 20% of 100	
	P	50

Explanation

The best response is A.

$\frac{10}{100} \times P = \left(\frac{20}{100}\right) \times 100.$

P = 200

10.	The average of positive integers P and Q is 3	
	P	Q

Explanation

The best response is D.

P + Q = 6. It's possible that P =3 and Q = 3, in which case the columns are equal. But it's also possible that P = 4 and Q = 2, in which case Column A is greater. Since you can get more than one result, the answer must be D.

Sweet Candies

Directions: Each of the following questions consists of two quantities in boxes, on in Column A and one in Column B. You are to compare the two quantities and write the correct answer next to the questions number.

A if the quantity in Column A is greater;

B if the quantity in Column B is greater;

C if the two quantities are equal;

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

Answer of each question has been given at the end of the exercise.

Note:

In some questions, information is given about one or both of the quantities to be compared. In such cases, the given information is centered above the two columns.

In a given question, a symbol that appears in both columns represents the same thing in Column A as it does in Column B.

Letters such as x, n and k stand for real numbers.

1.	The number P is 8 less than the number K.	
	P	K

2.	The total cost of 2 pencils and 3 ballpoints is Rs. 1.70	
	The cost of one pencil	The cost of one ballpoint

3.	$1.2 = \frac{S}{100}$	
	S	100

4.	N is a member of the set {-1, 0, 3, 5}, M is a member of the set {-2, 1, 2, 4}	
	N – M	-6

5.	Point P, Q, R, and S are each on a circle with center O and radius 10.	
	The length of PQ	The length of RS

6.	$\frac{A}{B} = \frac{2}{3}$	
	$9A^2$	$4B^2$

7.	$K = 3H$ $H > 0$	
	K + H	K × H

8.	The average of 3 integers a, b, and c is 40.	
	The average of a, b, c, and 39	40

9.	$5 < 2A - 1 < 9$	
	A	$\frac{9}{2}$

10.	Twenty-seven white cubes of the same size are put together to form a large cube. The larger cube is painted blue.	
	The number of the smaller cubes that have exactly three blue faces	9

11.

$KP = 0$	
K	0

12.

$\frac{3}{2} - \frac{1}{2}$	$\frac{7}{8} - \frac{1}{8}$

13.

$A^3 = B$	
A^6	B^2

14.

The circumference of a circle with radius 2	The sum of the circumferences of two circles, each with radius 1

15.

$A + 3 > 5$	
$A + 2$	4

16.

$6A - 2B < 0$	
A	0

17. Set T consists of all of the 3-digit numbers greater than 450 that contain the digit 2, 4, and 5 with no digit repeated.

The number of 3-digit number in set T	4

18. Points A and B lie on a circle. Line segment AB does not pass through the center of the circle. The length of line segment AB is 32.

The circumference of the circle	32

19. G is a positive integer.

The remainder when G is divided by 7	The remainder when G^2 is divided by 7

20. A and B are integers $0<A<B<10$

The number of multiples of A between 1 and 100	The number of multiples of B between 1 and 100

Answers

Q. No	Answer	Q. No	Answer	Q. No	Answer	Q. No	Answer	Q. No	Answer
1.	B	2.	D	3.	A	4.	A	5.	D
6.	C	7.	D	8.	B	9.	B	10.	B
11.	D	12.	A	13.	D	14.	C	15.	A
16.	D	17.	B	18.	A	19.	D	20.	A

Brain Busters

Directions: Each of the following questions consists of two quantities in boxes, on in Column A and one in Column B. You are to compare the two quantities and write the correct answer next to the questions number.

A if the quantity in Column A is greater;
B if the quantity in Column B is greater;
C if the two quantities are equal;
D if the relationship cannot be determined from the information given.

Answer and explanation of each question has been given at the end of the exercise.

	Column A	Column B
1.	$\frac{2}{3} \div 2$	30%
2.	$\frac{4}{17}$	$\frac{2}{15}$
3.	$3\frac{1}{2}$ expressed as a percent	3.5%
4.	$\sqrt{25.1}$	5.1
5.	Cost per egg if 2 dozen cost Rs. 1.90	9
6.	$(2 + .2)(2 - .2)$	$(.2)(1.8)((2.2)$
	$\left(\frac{1}{5}\right)$	
7.	$\sqrt{\frac{1}{4} + \frac{1}{9}}$	$\frac{1}{2} + \frac{1}{3}$
8.	$A = 3, B = -2$	
	$(A + B)^2$	$(A - B)^2$
9.	The distance from Quetta to Mangochar is 15 miles. The distance from Mangochar to a town K is 20 miles.	
	25 miles	The distance from Quetta to K
10.	x^5	x^2
11.	The area of a circle is 36π	
	Diameter of the circle	36
12.	The average of 5 numbers is 20	
	The sum of five numbers	110
13.	$\frac{1}{5}$	$\frac{1}{.05}$
14.	$.1\pi$	$\sqrt{.9}$
15.	Area of a square having perimeter 32	Area of circle having radius 5
16.	$A + 8 = B^2 - 1$	
	A	B
17.	$K^2 = 144$	
	K	12
18.	$A > B > 0$	
	$\frac{1}{A}$	$\frac{1}{B}$
19.	$(2)(2)(P) = (3)(3)(3)$	
	P	2
20.	$-4 < x < -2$	
	$\frac{1}{x^4}$	$\frac{1}{x^5}$

Answers

Q. No	Answer	Q. No	Answer	Q. No	Answer	Q. No	Answer	Q. No	Answer
1.	A	2.	A	3.	A	4.	B	5.	B
6.	C	7.	B	8.	B	9.	D	10.	D
11.	B	12.	B	13.	B	14.	B	15.	B
16.	D	17.	D	18.	B	19.	A	20.	A

Explanations

1.	A	$\frac{2}{3} \div 2 = \frac{2}{3} \cdot \frac{1}{2} = \frac{1}{3} = \frac{1}{3} \times 100\ \% = 33\frac{1}{3}\%$
2.	A	Cross multiply the fractions. Since 4 times 15 is greater than 17 times 2. Therefore, the first fraction is greater.
3.	A	$3\frac{1}{2} = 3.5 = 3.5 \times 100\ \% = 350\%$
4.	B	$\left(\sqrt{25.1}\right)^2 = 25.1 \quad (5.1)^2 = 26.01$
5.	B	$\frac{1.9}{24} \approx 8$ Pesa
6.	C	$2 + .2 = 2.2$ $2 - .2 = 1.8$ $\frac{1}{5} = .2$ Factors on both sides are the same.
7.	B	$\sqrt{\frac{1}{4}+\frac{1}{9}} = \sqrt{\frac{13}{36}} = \frac{\sqrt{13}}{6}$ $\frac{1}{2}+\frac{1}{3}=\frac{5}{6}$
8.	B	$(A + B)^2 = (1)^2 = 1$ $(A - B)^2 = (5)^2 = 25$
9.	D	The location of town K is unknown. It may be away from Mangochar, or it is in between Quetta and Mangochar.
10.	D	For different values of x, both columns have different values. If $x > 1$, A is bigger. If $x = 1$, A and B are equal. If $x < 0$, B is bigger.
11.	B	$36\pi = \pi r^2$ $36 = r^2$ $r = 6$ diameter $= 12$

12.	B	The sum of the numbers is 100.
13.	B	$\frac{1}{.5} = \frac{10}{5} = 2$ $\frac{1}{.05} = \frac{100}{5} = 20$
14.	B	$0.1(3.14) = 0.314$ $\sqrt{.9} = 0.94$
15.	B	Since each side of the square $= \frac{32}{4} = 8$ therefore, Area of the square is 64. Area of the circle is $25\pi = 25(3.14)$ is greater than 64
16.	D	Both A and B are unknown. For different values of B we have different values of A For B = 4, A is 11 and for B = -1 A is -6.
17.	D	K may be either 12 or -12.
18.	B	If A is greater, then $\frac{1}{A}$ is smaller.
19.	A	$4P = 27 \qquad P = 6\frac{3}{4}$
20.	A	Since x is negtive, any even power of x is positive, while any odd power x is negtive.