





Banking

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Date: 28th Dec 2023

Special Question - Quantitative Aptitude

English

Q:1 Directions: The roots of a quadratic equation are given:

2/5 and 2/3

If a in the quadratic equation formed by the given roots is divided by 5, b is divided by 4, and c is divided by -1 then, find the ratio of all positive roots.

1. 4:8:3

2. 4:3:7

3. 3:5:30

4. 1 : 5 : 15

5. 2:10:15

Q:2 Directions: The roots of a quadratic equation are given:

2/5 and 2/3

If a in the quadratic equation formed by the given roots is divided by 5, b is divided by 4, and c is divided by -1 then, find the positive root of the newly formed equation.

1. 2

2. 3

3. 1

4. 1/2

5. 3/2

Q:3 Directions: Three quadratic equations are as follows.

A. $2x^2 + 3x - \sqrt[3]{19683} = 0$

B. $3x^2 + 16x - \sqrt[3]{6859} = 0$

C. $4x^2 + 12x - \sqrt{256} = 0$

If the roots of equation C are divided by 4 then, find the sum of the square of the roots.

1. 11/13

2. 19/17

3. 13/17

4. 17/16

5. 15/16

Q:4 Directions: Three quadratic equations are as follows.

A. $2x^2 + 3x - \sqrt[3]{19683} = 0$

B. $3x^2 + 16x - \sqrt[3]{6859} = 0$

C. $4x^2 + 12x - \sqrt{256} = 0$

Find the ratio of the square of the roots of equation Α.

1. 81 : 4

2. 4:81

3. 7 : 4

4. 6:7

5. 4:9

Q:5 Directions: Three quadratic equations are as follows.

A. $2x^2 + 3x - \sqrt[3]{19683} = 0$

B. $3x^2 + 16x - \sqrt[3]{6859} = 0$

C. $4x^2 + 12x - \sqrt{256} = 0$

If 2 is added to all positive roots then, find the ratio between the Positive root of equation A to the sum of positive roots of equations B and C.

1. 3 : 7

2. 6:5

3. 5:6

4. 4 : 3

5. 3 : 4

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Answer Key

1 . (3) 2 . ((1) 3. (4)	4. (5)	5 . (3)
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Answers and Solutions

Q:1 The correct answer is Option 3 i.e. 3:5:30.

The standard form of the equation is a - b + c = 0and,

b will be in the form of b_1/a , b_2/a

Thus, from the given roots i.e. 2/5 and 2/3quadratic equation will be

 $15x^2$ - 16x + 4 [you can recheck its roots by solving this quadratic equation]

Now, according to the question

If a in the quadratic equation is divided by 5, b is divided by 4 and c is divided by -1

$$15/5x^2 - 16/4x + 4/-1 = 0$$

$$3x^2 - 4x - 4 = 0$$

$$3x^2 - 6x + 2x - 4 = 0$$

$$3x(x-2) + 2(x-2) = 0$$

$$(3x + 2)(x - 2) = 0$$

$$x = -2/3.2$$

Ratio =
$$2/5 : 2/3 : 2 = 1/5 : 1/3 : 2 = 3 : 5 : 30$$

Q:2 The correct answer is Option 1 i.e. 2.

The standard form of the equation is a - b + c = 0and.

b will be in the form of b_1/a , b_2/a

Thus, from the given roots i.e. 2/5 and 2/3quadratic equation will be

 $15x^2$ - 16x + 4 [you can recheck its roots by solving this quadratic equation]

Now, according to the question

If a in the quadratic equation is divided by 5, b is divided by 4 and c is divided by -1

$$15/5x^2 - 16/4x + 4/-1 = 0$$

$$3x^2 - 4x - 4 = 0$$

$$3x^2 - 6x + 2x - 4 = 0$$

$$3x(x-2) + 2(x-2) = 0$$

$$(3x + 2)(x - 2) = 0$$

$$x = -2/3, 2$$

Hence, the positive root of the equation is 2

Q:3 The correct answer is Option 4 i.e. 17/16.

A.
$$2x^2 + 3x - \sqrt[3]{19683} = 0$$

$$2x^2 + 3x - 27 = 0$$

$$2x^{2} + 9x - 6x - 27 = 0$$

$$x(2x + 9) - 3(2x + 9) = 0$$

$$(x - 3)(2x + 9) = 0$$

$$x = 3, -9/2$$
B. $3x^{2} + 16x - \sqrt[3]{6859} = 0$

$$3x^{2} + 16x - 19 = 0$$

$$3x^{2} + 19x - 3x - 19 = 0$$

$$x(3x + 19) - 1(3x + 19) = 0$$

$$(x - 1)(3x + 19) = 0$$

$$x = 1, -19/3$$
C. $4x^{2} + 12x - \sqrt{256} = 0$

$$4x^{2} + 16x - 4x - 16 = 0$$

$$4x(x + 4) - 4(x + 4) = 0$$

$$(4x - 4)(x + 4) = 0$$

$$x = 1, -4$$

Now, according to the question,

If the roots of equation C are divided by 4 then, find the sum of the square of the roots.

Roots are divided by 4 = 1/4, -4/4 = 1/4, -1

$$(1/4)^2 + (-1)^2 = 1/16 + 1 = (1 + 16)/16 = 17/16$$

Q:4 The correct answer is Option 5 i.e. 4:9.

A.
$$2x^2 + 3x - \sqrt[3]{19683} = 0$$

$$2x^2 + 3x - 27 = 0$$

$$2x^2 + 9x - 6x - 27 = 0$$

$$x(2x + 9) - 3(2x + 9) = 0$$

$$(x-3)(2x+9)=0$$

$$x = 3, -9/2$$

B.
$$3x^2 + 16x - \sqrt[3]{6859} = 0$$

$$3x^2 + 16x - 19 = 0$$

$$3x^2 + 19x - 3x - 19 = 0$$

$$x(3x + 19) - 1(3x + 19) = 0$$

$$(x-1)(3x+19)=0$$

$$x = 1, -19/3$$

C.
$$4x^2 + 12x - \sqrt{256} = 0$$

$$4x^2 + 12x - 16 = 0$$

$$4x^2 + 16x - 4x - 16 = 0$$

$$4x(x + 4) - 4(x + 4) = 0$$

$$(4x - 4)(x + 4) = 0$$

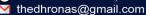
$$x = 1, -4$$

Now, according to the question,

The ratio of the square of the roots of equation A = $(3)^2: (-9/2)^2 = 9:81/4 = 1:9/4 = 4:9$







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Q:5 The correct answer is Option 3 i.e. 5:6.

A.
$$2x^2 + 3x - \sqrt[3]{19683} = 0$$

$$2x^2 + 3x - 27 = 0$$

$$2x^2 + 9x - 6x - 27 = 0$$

$$x(2x + 9) - 3(2x + 9) = 0$$

$$(x-3)(2x+9)=0$$

$$x = 3, -9/2$$

B.
$$3x^2 + 16x - \sqrt[3]{6859} = 0$$

$$3x^2 + 16x - 19 = 0$$

$$3x^2 + 19x - 3x - 19 = 0$$

$$x(3x + 19) - 1(3x + 19) = 0$$

$$(x-1)(3x+19)=0$$

$$x = 1, -19/3$$

C.
$$4x^2 + 12x - \sqrt{256} = 0$$

$$4x^2 + 12x - 16 = 0$$

$$4x^2 + 16x - 4x - 16 = 0$$

$$4x(x + 4) - 4(x + 4) = 0$$

$$(4x - 4)(x + 4) = 0$$

$$x = 1, -4$$

Now, according to the question,

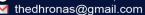
2 is added to all positive roots then, the ratio between the Positive root of equation A to the sum of positive roots of equations 2 and 3

Ratio =
$$(3 + 2)$$
: $(1 + 2 + 1 + 2)$ = 5:6



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