LIVE SESSION

MADE EASY

Concept Through Questions

CTQ'S Series

RRB JE-2024 CBT-1

BASIC MATHEMATICS
REASONING & APTITUDE

Lecture - 5

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Curved surface area of a cylinder is 440 cm^2. The base circumference is 44 cm. What is its volume?

(a) 1240 cm^3

(b) 3050 cm^3

(c) 1540 cm^3

(d) 710 cm^3

P is 25% less efficient than Q. In what ratio should their wages be shared?

(a) 4 : 3
(b) 3 : 2
(c) 3 : 4
(d) 3 : 5

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The following sequence of numbers is arranged in increasing order: 1, x, x, x, y, y, 9, 16, 18. Given that the mean and median are equal, and are also equal to twice the mode, the value of y is

(a) 5

(b) 6

(c) 7

(d) 8

Convert into vulgar fraction : $4 \cdot 1\overline{2}$

(a) $\frac{371}{900}$

(b) $\frac{299}{121}$

(c) $4\frac{11}{90}$

(d) $4\frac{11}{99}$

Find the square root of $\frac{x^2}{y^2}+\frac{y^2}{x^2}-2$.

(a) $\frac{x}{2y}+\frac{y}{2x}$

(b) $\frac{x}{y}-\frac{y}{x}$

(c) $\frac{x-y}{2}$

(d) $\frac{x}{y}+\frac{y}{x}$

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If $x = r \sin A \cos B$, $y = r \sin A \sin B$, and $z = r \cos A$, then find $x^2 + y^2 + z^2$.

(a) $2r^2$

(b) $3/2\ r^2$

(c) r^2

(d) $r^2(\cos^2 B + \cos^2 A)$

Difference of ages of father and son is 24 years. Two years back, the age of the father was twice the son's present age. What is the father's age now?

(a) 44
(b) 46
(c) 38
(d) 42

If $5x - 13xy + 6y^2 = 0$, find $x : y$.

(a) (2 : 1) only

(b) (5 : 3) or (1 : 2)

(c) (3 : 5) only

(d) (3 : 5) or (2 : 1)

A, B, C can do a work in 10, 12 and 15 days respectively all of them start the work together but A leaves after todays of starting through B leaves 3 days before completion then total number of days required for the work ?

a) 7
b) 9
c) 10
d) None

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Find the wrong number in the given series.

324, 109, 36, 12, 4

(a) 4

(b) 324

(c) 109

(d) 12

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The area of a circle got increased by 22 cm^2 when the radius was increased by 1 cm. What was the original radius?

(a) 9 cm
(b) 5 cm
(c) 7 cm
(d) 3 cm

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Find the ODD one out from the given options.

(a) Class - Student

(b) Sentence - Word

(c) Hour - Minute

(d) Tree - Forest

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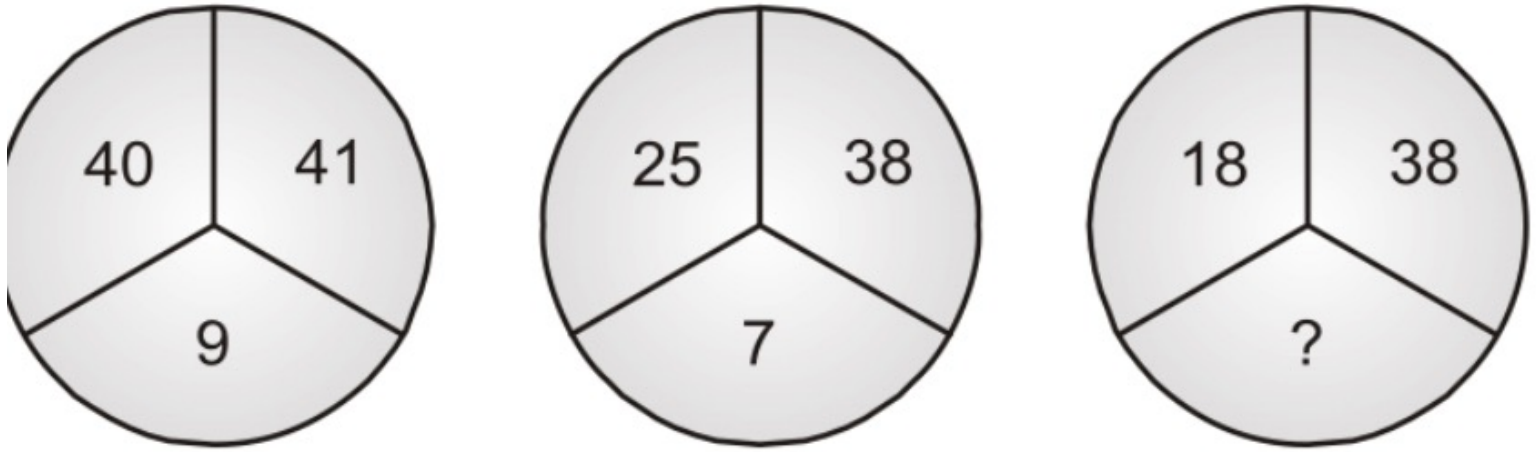
Choose the alternative that best replaces the question mark (?) in the given figure.



(a) 18

(b) 14

(c) 9

(d) 6

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Amit moves 20 m east. Then, turning to his left he moves 10 m. Then he turns right and walks 20 m. Then he moves 10 m after turning to his right. Finally, he turns towards his left and covered a distance of 20 m and reached his office. How far is he from his home?

(a) 65 m
(b) 68 m
(c) 62 m
(d) 60 m

6 friends A,B,C,D,E,F are sitting around a Circle such that neither D nor E is opposite to C or F. Further, A is not adjacent to E and C is to right of F. Then, who is F opposite to E ?

a) A
b) B
c) D
d) F

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Given below are two statements followed by two conclusions. Assuming these statements to be true, decide which one logically follows:

Statements:

I. No manager is a leader.

II. All leaders are executives.

Conclusions:

I. No manager is an executive.

II. No executive is a manager.

(a) Only conclusion I follows

(b) Only conclusion II follows

(c) Neither conclusion I nor II follows

(d) Both conclusions I and II follow

CTQs Series : RRB JE 2024 CBT-1

Two identical items are sold for Rs.200 each, with 10% gain on one but 10% loss on the other. What is the net percentage loss or gain?

(a) 1% gain
(b) 2% gain
(c) 2% loss
(d) 1% loss

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In a survey conducted in a locality, it was found that 50% read newspaper A, 40% read newspaper B, and 20% read neither A nor B. If the number of persons who read both A and B is 500, then how many persons were surveyed?

(a) 7000
(b) 3000
(c) 4500
(d) 5000

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Complete the series.

0.7, 0.75, 0.85, 1, (...)

(a) 1.2

(b) 1.6

(c) 1.8

(d) 1.1

If $x-\frac{1}{x}=3$, then find the value of $x^4+\frac{1}{x^4}$.

(a) 123

(b) 129

(c) 119

(d) 14

CTQs Series : RRB JE 2024 CBT-1

If $\tan \alpha = 1/2$, $\tan \beta = 1/3$, then find $\alpha + \beta$.

(a) 0°

(b) 45°

(c) 90°

(d) 135°

CTQs Series : RRB JE 2024 CBT-1

What is the area of a regular hexagon of side 6 cm?

(a) $108\sqrt{3}\ cm^2$

(b) $64\sqrt{3}\ cm^2$

(c) $54\sqrt{3}\ cm^2$

(d) $72\sqrt{3}\ cm^2$

CTQs Series : RRB JE 2024 CBT-1

A number when divided by 234 gives the remainder 36. What will be the remainder when it is divided by 13?

(a) 6

(b) 11

(c) 9

(d) 10

CTQs Series : RRB JE 2024 CBT-1

Ten years ago father was 12 times as old as his son and after 10 years father will be 2 times older than his son. The present ages of father and son respectively are

(a) 32 years and 14 years

(b) 34 years and 14 years

(c) 32 years and 12 years

(d) 34 years and 12 years

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Find the value of $\frac{1}{1\times 2}+\frac{1}{2\times 3}+\frac{1}{3\times 4}+\frac{1}{4\times 5}+$

$\frac{1}{5\times 6}+\ldots+\frac{1}{9\times 10}$

(a) 9/10

(b) 5/11

(c) 2/5

(d) 1/10

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Find the LCM of $(2^2 \times 3^2 \times 5 \times 7)$, $(2^3 \times 3 \times 5^2 \times 7)$ and $(2 \times 3 \times 5 \times 7)$.

(a) 7200

(b) 8400

(c) 9000

(d) 6300

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P and Q invested in a business in the ratio 5:13. Q withdrew his capital after 6 months. If they shared their profit in the ratio 25:26, for how long was P's amount used?

(a) 18 months
(b) 12 months
(c) 8 months
(d) 15 months

CTQs Series : RRB JE 2024 CBT-1

Travelling at 3/4 of the normal speed, a person reaches his work place 15 minutes late. How many minutes does he take usually to reach the workpalce?

(a) 60 minutes
(b) 30 minutes
(c) 42 minutes
(d) 45 minutes

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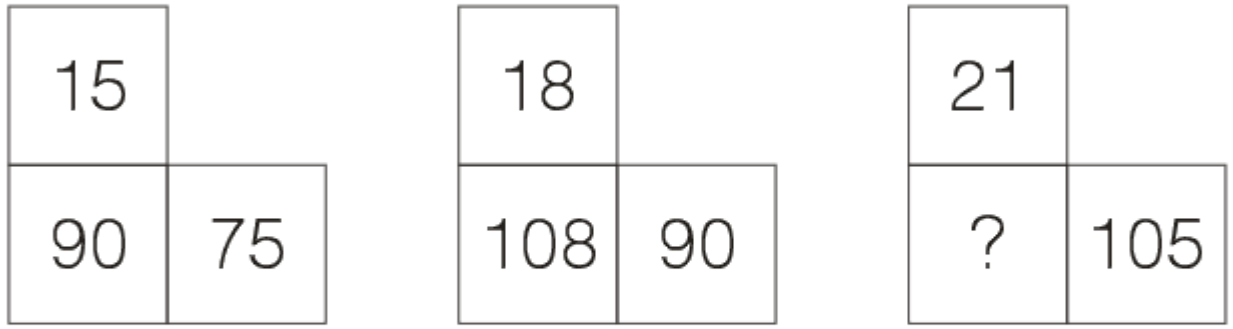
Choose the alternate that best replaces the question mark (?) in the given figure



(a) 108

(b) 126

(c) 84

(d) 136

If $\cot\theta = \frac{a}{b}$, then find $\frac{\cos\theta - \sin\theta}{\cos\theta + \sin\theta}$.

(a) $\frac{b}{a}$

(b) $\frac{a}{b}$

(c) $\frac{a^2}{b^2}$

(d) $\frac{(a-b)}{(a+b)}$

CTQs Series : RRB JE 2024 CBT-1

If cube has numerically equal surface area and volume, find the volume of the cube.

(a) 162 cubic units
(b) 512 cubic units
(c) 216 cubic units
(d) 276 cubic units

CTQs Series : RRB JE 2024 CBT-1

Express $0.\overline{125}$ in rational form.

(a) 125/999

(b) 119/993

(c) 100/999

(d) 113/990

CTQs Series : RRB JE 2024 CBT-1

Find the HCF of two consecutive even integers.

(a) 1

(b) 2

(c) –1

(d) 0

CTQs Series : RRB JE 2024 CBT-1

Simplify: $106 \times 106 + 94 \times 94$

(a) 20032

(b) 20072

(c) 23032

(d) 21032

CTQs Series : RRB JE 2024 CBT-1

If in a certain code, RAT = 40, CHAT = 33, then RETURN = ?

(a) 88

(b) 99

(c) 84

(d) 97

CTQs Series : RRB JE 2024 CBT-1

The ratio of the time taken to row a certain distance upstream to the time taken to go downstream is 4 : 1. What is the ratio of the speed along stream to that upstream?

(a) 4 : 1

(b) 3 : 5

(c) 1 : 4

(d) 5 : 3

CTQs Series : RRB JE 2024 CBT-1

The sum of two numbers is 22. Five times one number is equal to six times the other. Find the larger of the two numbers.

(a) 10

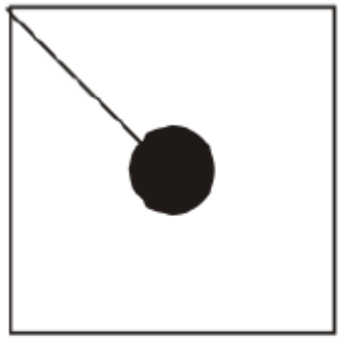
(b) 16

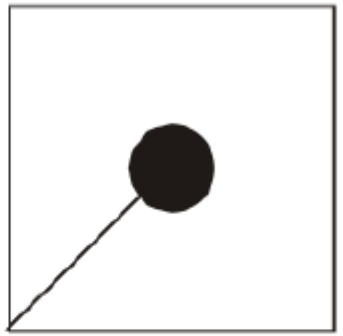
(c) 15

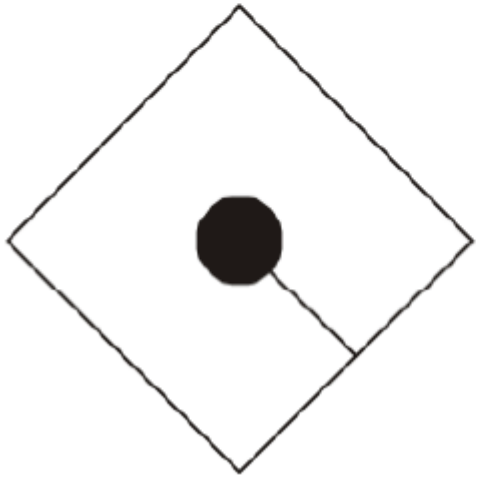
(d) 12

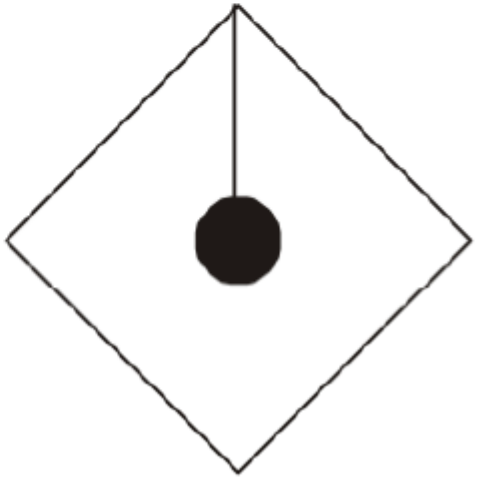
CTQs Series : RRB JE 2024 CBT-1

Find the ODD one out from the given options

(a) 

(b) 

(c) 

(d) 

CTQs Series : RRB JE 2024 CBT-1

The length of a rectangle is halved, and its breadth is tripled. What is the percentage change in its area?

(a) 50% increase
(b) 50% decrease
(c) 75% decrease
(d) 25% increase

CTQs Series : RRB JE 2024 CBT-1

Which of these pairs of numbers CANNOT be the last two digits a, b in 21022ab, if it is divisible by both 8 and 5?

(a) $a = 2, b = 0$

(b) $a = 0, b = 0$

(c) $a = 8, b = 0$

(d) $a = 4, b = 5$

CTQs Series : RRB JE 2024 CBT-1

If $x = 2^8$ and $x^x = 2^y$, then find the value of 'y'.

(a) 1

(b) 2^4

(c) 2^{64}

(d) 2^{11}

CTQs Series : RRB JE 2024 CBT-1

An article is marked 20% above the cost price and sold at a discount of 20%. What is the net result of this sale?

(a) 10% gain
(b) No profit or loss
(c) 10% loss
(d) 4% loss

CTQs Series : RRB JE 2024 CBT-1

Which word will best complete the relationship given below?

Needle : Sew :: Knife : ?

(a) Cut

(b) Drive

(c) Feed

(d) Grind

Find the LCM of 2/3 and 6/7.

(a) 6/21

(b) 12/21

(c) 2/21

(d) 6

CTQs Series : RRB JE 2024 CBT-1

What is the area included between a circle and an inscribed square of side 'a' units?

(a) $a^2(2\pi - 1)$ sq. units

(b) $(a^2/2)(\pi - 2)$ sq. units

(c) $a^2(2 - \pi)$ sq. units

(d) $2a^2(\pi - 2)$ sq. units

CTQs Series : RRB JE 2024 CBT-1

Ratio of speeds of two vehicles is 7 : 8. If the second vehicle covers 400 km in 5 hours, what is the speed of the first vehicle?

(a) 65 km/h
(b) 85 km/h
(c) 70 km/h
(d) 75 km/h

CTQs Series : RRB JE 2024 CBT-1

On which dates will Sundays come in February 2020?

(a) 3, 10, 17, 24 of February

(b) 8, 15, 22, 29 of February

(c) 2, 9, 16, 23 of February

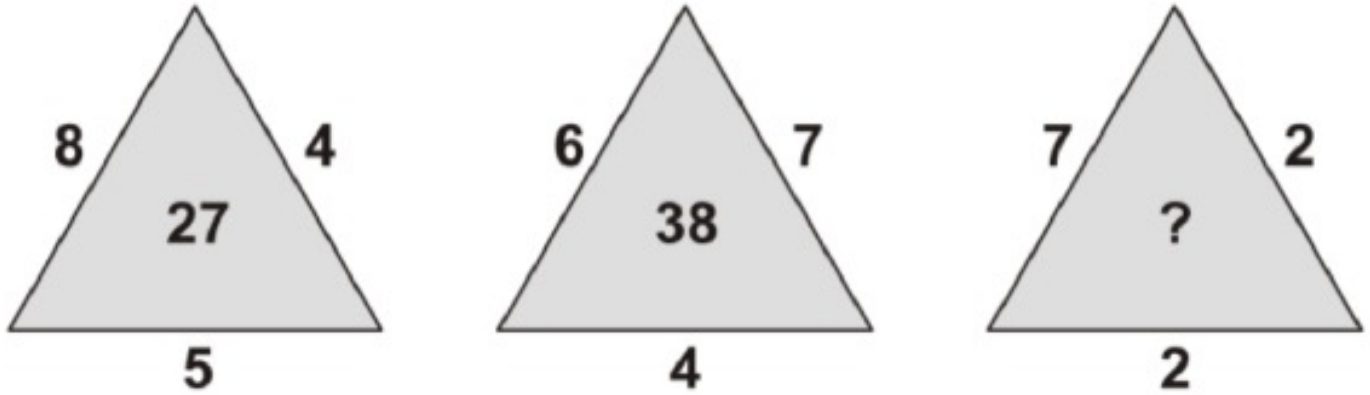
(d) 5, 12, 19, 26 of February

CTQs Series : RRB JE 2024 CBT-1

An aeroplane is moving at a constant altitude 'h'. At 10:00 AM, it is seen at an elevation of 30°. 1 minute later, it is observed at an elevation of 60°. If the speed of the plane is 960 km/h, then find 'h'.

(a) 13.86 km
(b) 15 km
(c) 12.46 km
(d) 20 km

CTQs Series : RRB JE 2024 CBT-1



(a) 12
(b) 24
(c) 19
(d) 15

Choose the alternative that best replaces the question mark(?) in the given figure.

CTQs Series : RRB JE 2024 CBT-1

Four vessels of equal size are filled with mixtures of milk and water. The strength of milk in the four vessels is 80%, 75%, 60% and 50% respectively. If all four mixtures are mixed, what is the ratio of water to milk in the resultant mixture?

(a) 27 : 53
(b) 13 : 27
(c) 29 : 51
(d) 3 : 5

If $y = 3 + 2\sqrt{2}$, then find the value of $\sqrt{y}$.

(a) $\sqrt{2} + 1$

(b) 1

(c) $\sqrt{2} - 1$

(d) $\sqrt{2} + \sqrt{3}$

CTQs Series : RRB JE 2024 CBT-1

Choose the alternative that best replaces the question mark (?) in the given figure :

6	5	4
11	9	7
?	56	33

(a) 75

(b) 95

(c) 85

(d) 65

A metallic sphere of radius 6 cm is melted and drawn into a wire, whose radius of cross-section is 8 cm. What is the length of the wire?

(a) 3.5 cm
(b) 5 cm
(c) 4.5 cm
(d) 4 cm

If A, B and C are three points on a circle, where BC is the diameter and $AC = AB = 5\sqrt{2}$ cm. Find the radius of the circle.

(a) 6 cm

(b) 5 cm

(c) $\frac{5}{\sqrt{2}}$ cm

(d) 4 cm

CTQs Series : RRB JE 2024 CBT-1

Two cones are such that the ratio of their volumes is 1 : 10 and ratio of their heights is 2 : 5. What is the ratio of their base radii?

(a) 5 : 2

(b) 1 : 2

(c) 2 : 1

(d) 7 : 25

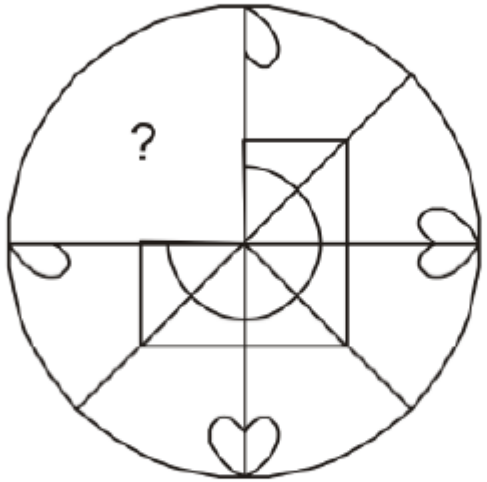
CTQs Series : RRB JE 2024 CBT-1

If in a certain language 'KINDLE' is coded 'ELDNIK', how is 'EXOTIC' coded in that language?

(a) CITXOE
(b) CIXOTE
(c) CITOXE
(d) CXOTLE

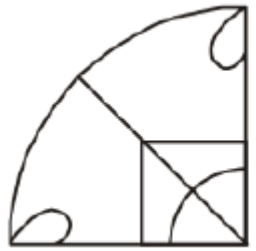
CTQs Series : RRB JE 2024 CBT-1

Choose from the alternatives the figure that best completes the pattern given below.



(a) 

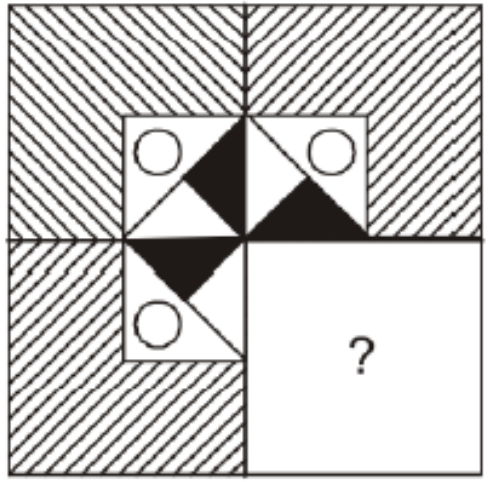
(b) 

(c) 

(d) 

CTQs Series : RRB JE 2024 CBT-1

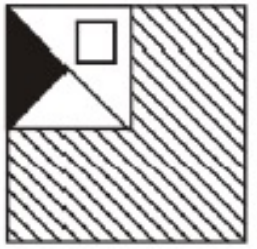
Choose from the alternatives the figure that best completes the pattern given below.



(a) 

(b) 

(c) 

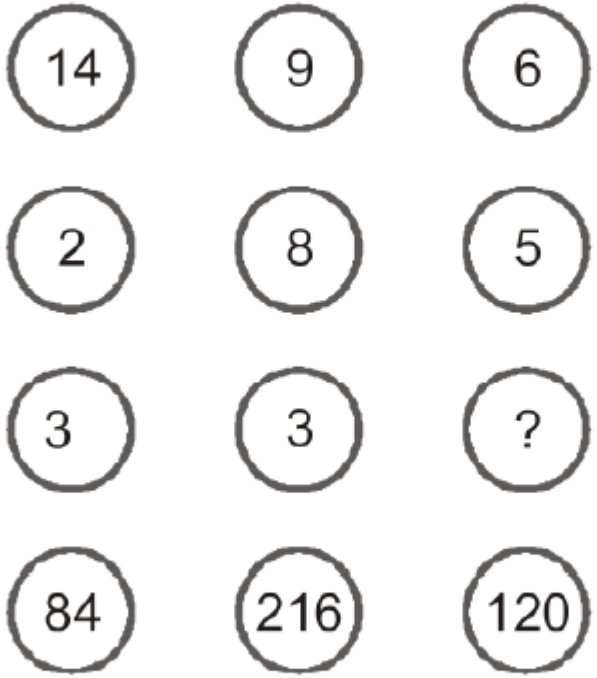
(d) 

Two motorists traveling in opposite directions meet at some point in between. After this, they take 9 and 16 hours to reach their respective destinations. What is the ratio of their speeds?

(a) 5 : 3
(b) 5 : 4
(c) 4 : 7
(d) 4 : 3

CTQs Series : RRB JE 2024 CBT-1

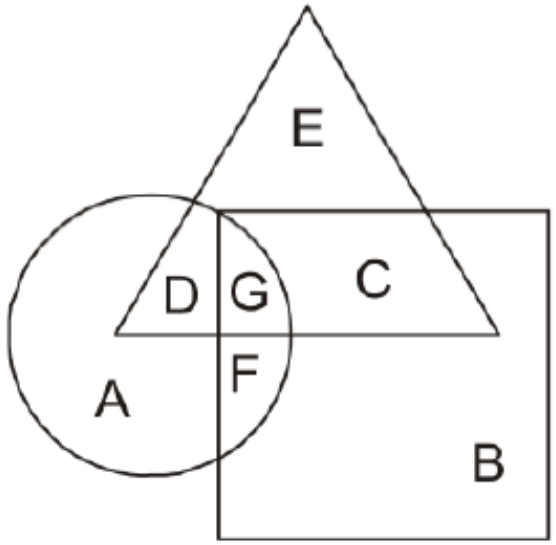
Choose the alternative that best replaces the question mark(?) in the given figure.



(a) 4
(b) 6
(c) 8
(d) 7

CTQs Series : RRB JE 2024 CBT-1

In the given figure, the circle represents graduates, the triangle represents working people, and the square represents postgraduates. Which region represents graduates and postgraduates but not working people?



(a) D
(b) G
(c) F
(d) C