



CREST Mathematics Olympiad (CMO) Worksheet *for* Class 6



Topic

Ratio and Proportion



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Worksheet on Ratio and Proportion

1. The earning of Charlie is \$83400 per year and the earning of Harry is \$6250 every month. If the monthly expenses of both Charlie and Harry are around \$5210. What is the ratio of their savings?
 - a. 50 : 87
 - b. 52 : 87
 - c. 87 : 50
 - d. 87 : 52
2. In a club of 360 members, 96 like to play table tennis, 144 like to play badminton, 40 like to play cribbage and the remaining like to play volleyball. If a player is not playing two games or more, what is the ratio of the number of members who like to play volleyball to badminton?
 - a. 5 : 9
 - b. 5 : 7
 - c. 7 : 5
 - d. 9 : 5
3. What is the third proportional to 5.25 and 7?
 - a. $3\frac{1}{3}$
 - b. $3\frac{2}{3}$
 - c. $9\frac{1}{3}$
 - d. $9\frac{2}{3}$
4. What is the ratio $a : b$ if $5a + 2b : 3b - 5a :: 5 : 2$?
 - a. 11 : 35
 - b. 35 : 11
 - c. 13 : 35
 - d. 35 : 13
5. There are a few building blocks in the box that have the names P, Q, R and S written on them. The ratio of blocks P : Q : R : S is in the ratio 13 : 3 : 11 : 7. What is the number of 'R' blocks if the number of 'Q' blocks is 144 less than the number of 'S' blocks?
 - a. 336
 - b. 396
 - c. 468
 - d. 486

Answer Key

1. d - 87 : 52

Explanation: Income of Charlie per year = \$83400

Income of Charlie per month = \$83400/12 = \$6950

Savings of Charlie per month = \$(6950 - 5210) = \$1740

Income of Harry per year = \$6250

Savings of Harry per month = \$(6250 - 5210) = \$1040

Ratio of savings of Charlie and Harry = \$1740 : \$1040 = 87 : 52

2. a - 5 : 9

Explanation: Total members in a club = 360 members

Members who like to play table tennis = 96 members

Members who like to play badminton = 144 members

Members who like to play carrom = 40 members

Members who like to play volleyball = 360 - (96 + 144 + 40)

$$= 360 - 280$$

$$= 80 \text{ members}$$

Ratio of the number of members who like to play volleyball to badminton = 80 : 144

$$= 5 : 9$$

3. c - $9\frac{1}{3}$

Let the required third proportional be x.

5.25, 7 and x are in continued proportion.

$$\Rightarrow 5.25 : 7 = 7 : x$$

$$\Rightarrow \frac{5.25}{7} = \frac{7}{x}$$

$$\Rightarrow 5.25 \times x = 7 \times 7$$

$$\Rightarrow 5.25 \times x = 49$$

$$\Rightarrow x = \frac{49}{5.25}$$

$$\Rightarrow x = \frac{49}{525} \times 100$$

$$\Rightarrow x = \frac{\overset{7}{\cancel{49}}}{\underset{\overset{3}{\cancel{21}}}{\cancel{525}}} \times \overset{4}{\cancel{100}}$$

$$\Rightarrow x = \frac{28}{3}$$

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



4. $a - 11 : 35$

Explanation: $5a + 2b : 3b - 5a :: 5 : 2$

$$\Rightarrow (5a + 2b)/(3b - 5a) = 5/2$$

$$\Rightarrow 2 \times (5a + 2b) = 5 \times (3b - 5a)$$

$$\Rightarrow 10a + 4b = 15b - 25a$$

$$\Rightarrow 10a + 25a = 15b - 4b$$

$$\Rightarrow 35a = 11b$$

$$\Rightarrow a/b = 11/35$$

$$\Rightarrow a : b = 11 : 35$$

5. $b - 396$

Explanation: Let the number of the blocks $P : Q : R : S$ be $13x, 3x, 11x$ and $7x$, respectively.
Number of 'Q' blocks is 144 less than the number of 'S' blocks.

$$\Rightarrow 3x = 7x - 144$$

$$\Rightarrow 7x - 3x = 144$$

$$\Rightarrow 4x = 144$$

$$\Rightarrow x = 36$$

$$\begin{aligned}\text{Number of 'R' blocks} &= 11 \times x \\ &= 11 \times 36 \\ &= 396\end{aligned}$$

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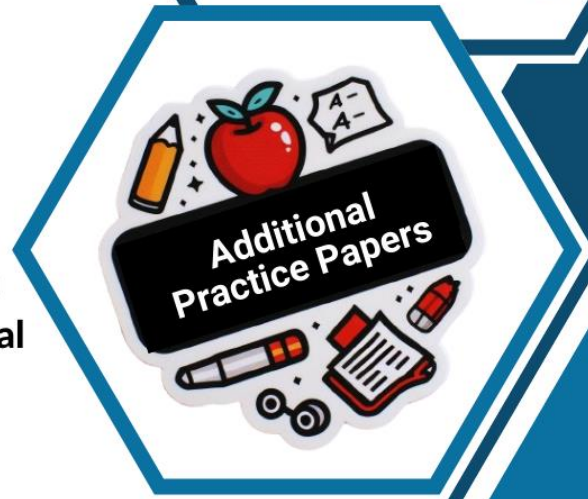
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