



Year 8 Worksheet 7: Ratios, rates and time

Question 1: Answer the following.

1	<p>In a workshop, the ratio of the number of hammers to the number of saws is 5:3. If there are 20 hammers, how many saws are there?</p> <p>A. 12 B. 8 C. 16 D. 18</p>
2	<p>A train travels at a speed of 72 kilometers per hour for the first half of its journey and then increases its speed to 90 kilometers per hour for the second half. What is the average speed for the entire journey?</p> <p>A. 72 km/h B. 81 km/h C. 86 km/h D. 90 km/h</p>
3	<p>In a mixture of fruit juice, the ratio of orange juice to apple juice is 4:1. If there are 20 liters of orange juice, how many liters of apple juice are in the mixture?</p> <p>A. 4 liters B. 5 liters C. 10 liters D. 16 liters</p>
4	<p>The ratio of students who passed an exam to those who failed is 6:3. If there are 60 students who passed, how many students failed?</p> <p>A. 20 B. 15 C. 25 D. 30</p>



5	<p>A car travels from City A to City B at a speed of 60 mph and returns from City B to City A at a speed of 45 mph. What is the average speed for the entire round trip?</p> <p>A. 52.5 mph B. 50 mph C. 52 mph D. 55 mph</p>
6	<p>A machine can produce 200 items in 5 hours. How many hours would it take for the machine to produce 400 items?</p> <p>A. 10 hours B. 12.5 hours C. 15 hours D. 20 hours</p>
7	<p>A rectangle has a length-to-width ratio of 3:2. If the perimeter of the rectangle is 40 meters, what are its dimensions?</p> <p>A. Length = 15 m, Width = 10 m B. Length = 10 m, Width = 15 m C. Length = 12 m, Width = 8 m D. Length = 8 m, Width = 12 m</p>
8	<p>In a school, the ratio of the number of boys to the number of girls is 5:7. If there are 144 students, how many boys are there?</p> <p>A. 30 B. 60 C. 40 D. 50</p>
9	<p>A recipe calls for 2 cups of sugar for every 3 cups of flour. If you want to make a batch with 6 cups of flour, how many cups of sugar do you need?</p> <p>A. 2 cups B. 3 cups C. 4 cups D. 6 cups</p>
10	<p>A container has a mixture of water and juice in the ratio of 3:5. If there are 24 liters of the mixture, how many liters of juice are in it?</p> <p>A. 12 liters B. 10 liters C. 15 liters D. 20 liters</p>



Question 2: Answer the following.

1	<p>a) If there are 6 artists and 54 spectators at an art exhibition, express the ratio of artists to spectators in simplest terms.</p> <p>b) What is the ratio of red to blue paintings if there are 30 red paintings and 35 blue paintings in the exhibition?</p> <p>c) Calculate the ratio of artists to everyone at the art exhibition.</p>
2	<p>Daniel made 90 runs in 18 overs of cricket. Calculate his run rate in runs per over.</p>
3	<p>A house has an area of 200 m². If the ratio of living area to sleeping area is 5:3, what is the size of the living area?</p>



4	Complete the proportion: $8 : 12 = 56 : \underline{\hspace{2cm}}$.
5	A TV screen has a length-to-height ratio of 4:3. If its length is 48 cm, what is its height?
6	Petrol costs \$1.55 per liter. How many liters did Peter buy for \$80.25?
7	Simplify the ratio 20 : 25 : 30.
8	The ratio of male to female teachers at Harmony School is 3 : 8. If there are 88 teachers, how many male teachers are there?



9	<p>Simplify each ratio:</p> <p>a) 60 cm : 15 cm</p> <p>b) 6 years : 24 months</p>
10	<p>In a woodworking workshop, there are 8 carpenters and 48 tools.</p> <p>a) Express the ratio of carpenters to tools in simplest terms.</p> <p>b) Express the ratio of carpenters to the total tools and carpenters in simplest terms.</p>



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Answer Key

Question 1: Answer the following.

1	<p>In a workshop, the ratio of the number of hammers to the number of saws is 5:3. If there are 20 hammers, how many saws are there?</p> <p>A. 12 B. 8 C. 16 D. 18 Answer: A. 12</p>
2	<p>A train travels at a speed of 72 kilometers per hour for the first half of its journey and then increases its speed to 90 kilometers per hour for the second half. What is the average speed for the entire journey?</p> <p>A. 72 km/h B. 81 km/h C. 86 km/h D. 90 km/h Answer: B. 81 km/h</p>
3	<p>In a mixture of fruit juice, the ratio of orange juice to apple juice is 4:1. If there are 20 liters of orange juice, how many liters of apple juice are in the mixture?</p> <p>A. 4 liters B. 5 liters C. 10 liters D. 16 liters Answer: B. 5 liters</p>
4	<p>The ratio of students who passed an exam to those who failed is 6:3. If there are 60 students who passed, how many students failed?</p> <p>A. 20 B. 15</p>



	<p>C. 25 D. 30 Answer: D. 30</p>
5	<p>A car travels from City A to City B at a speed of 60 mph and returns from City B to City A at a speed of 45 mph. What is the average speed for the entire round trip?</p> <p>A. 52.5 mph B. 50 mph C. 52 mph D. 55 mph Answer: A. 52.5 mph</p>
6	<p>A machine can produce 200 items in 5 hours. How many hours would it take for the machine to produce 400 items?</p> <p>A. 10 hours B. 12.5 hours C. 15 hours D. 20 hours Answer: A. 10 hours</p>
7	<p>A rectangle has a length-to-width ratio of 3:2. If the perimeter of the rectangle is 40 meters, what are its dimensions?</p> <p>A. Length = 15 m, Width = 10 m B. Length = 10 m, Width = 15 m C. Length = 12 m, Width = 8 m D. Length = 8 m, Width = 12 m Answer: C. Length = 12 m, Width = 8 m</p>
8	<p>In a school, the ratio of the number of boys to the number of girls is 5:7. If there are 144 students, how many boys are there?</p> <p>A. 30 B. 60 C. 40 D. 50 Answer: B. 60</p>



9	<p>A recipe calls for 2 cups of sugar for every 3 cups of flour. If you want to make a batch with 6 cups of flour, how many cups of sugar do you need?</p> <p>A. 2 cups B. 3 cups C. 4 cups D. 6 cups Answer: C. 4 cups</p>
10	<p>A container has a mixture of water and juice in the ratio of 3:5. If there are 24 liters of the mixture, how many liters of juice are in it?</p> <p>A. 12 liters B. 10 liters C. 15 liters D. 20 liters Answer: C. 15 liters</p>

Question 2: Answer the following.

1	<p>a) If there are 6 artists and 54 spectators at an art exhibition, express the ratio of artists to spectators in simplest terms. Answer: 1:9</p> <p>b) What is the ratio of red to blue paintings if there are 30 red paintings and 35 blue paintings in the exhibition? Answer: 6:7</p> <p>c) Calculate the ratio of artists to everyone at the art exhibition. Answer: 1:10</p>
2	<p>Daniel made 90 runs in 18 overs of cricket. Calculate his run rate in runs per over. Answer: 5 runs per over</p>
3	<p>A house has an area of 200 m². If the ratio of living area to sleeping area is 5:3, what is the size of the living area? Answer: 125 m²</p>



4	Complete the proportion: $8 : 12 = 56 : \underline{\hspace{2cm}}$. Answer: 84
5	A TV screen has a length-to-height ratio of 4:3. If its length is 48 cm, what is its height? Answer: 36 cm
6	Petrol costs \$1.55 per liter. How many liters did Peter buy for \$80.25? Answer: 51.77 or 52 liters
7	Simplify the ratio 20 : 25 : 30. Answer: 4 : 5 : 6
8	The ratio of male to female teachers at Harmony School is 3 : 8. If there are 88 teachers, how many male teachers are there? Answer: 24 male teachers
9	Simplify each ratio: a) 60 cm : 15 cm Answer: 4 : 1 b) 6 years : 24 months Answer: 3 : 1
10	a) Answer: 1:6 b) Answer: 1:7