Year 7 Worksheet 8: Measurements

Question 1: Converting between units in the metric system

1	Convert 4 meters to centimeters.
2	Change 3.5 kilograms to grams.
3	Convert 0.75 liters to milliliters.
4	Change 15 centimeters to millimeters.
5	Convert 2,000 grams to kilograms.
6	Convert 250 milliliters to liters.

7	Change 2.5 kilometers to meters.
8	Convert 0.6 kilograms to grams.
9	Convert 1.8 liters to milliliters.
10	Change 250 millimeters to centimeters.

Question 2: Perimeter and area calculations.

1	Calculate the area of a triangle with a base of 4.5 meters and a height of 250 centimeters.
2	Find the perimeter of a rectangle with length 2.5 kilometers and width 350 meters.
3	Find the perimeter of a parallelogram with a base of 9.6 kilometers and a side length of 750 meters.
4	Calculate the area of a trapezoid with bases of 6 centimeters and 80 millimeters and a height of 3.2 meters.
5	Calculate the area of a triangle with a base of 12 centimeters and a height of 7 millimeters.

6	Find the perimeter of a parallelogram with a base of 9 meters and a side length of 6 decimeters.
7	Find the perimeter of a regular hexagon with sides measuring 6 centimeters.
8	Find the perimeter of a square with sides measuring 3.5 kilometers.
9	Calculate the area of a circle with a radius of 9 millimeters.
10	Calculate the area of a trapezoid with bases of 5 centimeters and 7 millimeters and a height of 3 decimeters.

Question 3: Volume calculation.

1	Determine the volume of a cube with sides measuring 6 centimeters.
2	Calculate the volume of a cuboid with length 9 meters, width 4 meters, and height 2 meters.
3	Determine the volume of a cylinder with a radius of 5 centimeters and a height of 8 centimeters.
4	Determine the volume of a triangular prism with a triangular base having a base of 7 centimeters, a height of 9 centimeters, and a prism height of 15 centimeters.
5	Calculate the volume of a cuboid with length 12 meters, width 500 centimeters, and height 3 millimeters.

6	Find the volume of a cylinder with a radius of 6 meters and a height of 2 kilometers.
7	Problem: Determine the volume of a cylinder with a radius of 2 meters and a height of 75 centimeters.
8	Determine the volume of a rectangular prism with length 5 kilometers, width 6 meters, and height 40 centimeters.
9	Determine the volume of a rectangular prism with length 5 meters, width 3 kilometers, and height 700 millimeters.
10	Calculate the volume of a semicircular cylinder with a radius of 2 meters and a cylinder height of 5 meters.

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Answer Key

Question 1: Converting between units in the metric system

1	Convert 4 meters to centimeters. Answer: 4 meters is equal to 400 centimeters.
2	Change 3.5 kilograms to grams. Answer: 3.5 kilograms is equal to 3,500 grams.
3	Convert 0.75 liters to milliliters. Answer: 0.75 liters is equal to 750 milliliters.
4	Change 15 centimeters to millimeters. Answer: 15 centimeters is equal to 150 millimeters.
5	Convert 2,000 grams to kilograms. Answer: 2,000 grams is equal to 2 kilograms.
6	Convert 250 milliliters to liters. Answer: 250 milliliters is equal to 0.25 liters.
7	Change 2.5 kilometers to meters. Answer: 2.5 kilometers is equal to 2,500 meters.
8	Convert 0.6 kilograms to grams. Answer: 0.6 kilograms is equal to 600 grams.
9	Convert 1.8 liters to milliliters. Answer: 1.8 liters is equal to 1,800 milliliters.
10	Change 250 millimeters to centimeters. Answer: 250 millimeters is equal to 25 centimeters.

Question 2: Perimeter and area calculations.

1	Calculate the area of a triangle with a base of 4.5 meters and a height of 250 centimeters. Answer: Area = (1/2) × Base × Height = (1/2) × 4.5 meters × 2.5 meters = 5.625 square meters.
2	Find the perimeter of a rectangle with length 2.5 kilometers and width 350 meters. Answer: Perimeter = 2 × (Length + Width) = 2 × (2500 meters + 350 meters) = 2 × 2850 meters = 5700 meters.
3	Find the perimeter of a parallelogram with a base of 9.6 kilometers and a side length of 750 meters. Answer: Perimeter = 2 × (Base + Side Length) = 2 × (9600 meters + 750 meters) = 2 × 10350 meters = 20700 meters.
4	Calculate the area of a trapezoid with bases of 6 centimeters and 80 millimeters and a height of 3.2 meters. Answer: Convert the bases to millimeters (6 centimeters = 60 millimeters). Convert the height to millimeters (3.2 meters = 3200 millimeters). Area = (1/2) × (Base1 + Base2) × Height = (1/2) × (60 millimeters + 80 millimeters) × 3200 millimeters = 224000 square millimeters.
5	Calculate the area of a triangle with a base of 12 centimeters and a height of 7 millimeters. Answer: Area = (1/2) × Base × Height = (1/2) × 12 centimeters × 0.7 centimeters = 4.2 square centimeters.
6	Find the perimeter of a parallelogram with a base of 9 meters and a side length of 6 decimeters. Answer: Perimeter = 2 × (Base + Side Length) = 2 × (9 meters + 0.6 meters) = 2 × 9.6 meters = 19.2 meters.

7	Find the perimeter of a regular hexagon with sides measuring 6 centimeters. Answer: Perimeter = 6 × Side Length = 6 × 6 centimeters = 36 centimeters.
8	Find the perimeter of a square with sides measuring 3.5 kilometers. Answer: Perimeter = 4 × Side Length = 4 × 3500 meters = 14000 meters.
9	Calculate the area of a circle with a radius of 9 millimeters. Answer: Area = π × Radius^2 = π × (9 millimeters)^2 = π × 81 square millimeters ≈ 254.47 square millimeters.
10	Calculate the area of a trapezoid with bases of 5 centimeters and 7 millimeters and a height of 3 decimeters. Answer: Convert the bases to millimeters 5 centimeters = 50 millimeters, 3 decimeters = 30 centimeters = 300 millimeters Area = (1/2) × (Base1 + Base2) × Height = (1/2) × (50 millimeters + 7 millimeters) × 300 millimeters = 8550 square millimeters.

Question 3: Volume calculation.

1	Determine the volume of a cube with sides measuring 6 centimeters. Answer: The volume is 216 cubic centimeters.
2	Calculate the volume of a cuboid with length 9 meters, width 4 meters, and height 2 meters. Answer: The volume is 72 cubic meters.

3	Determine the volume of a cylinder with a radius of 5 centimeters and a height of 8 centimeters . Answer: Volume = π × Radius^2 × Height = π × (5 cm)^2 × 8 cm = 200π cubic centimeters The volume is approximately 628.32 cubic centimeters.
4	Determine the volume of a triangular prism with a triangular base having a base of 7 centimeters, a height of 9 centimeters, and a prism height of 15 centimeters. Answer: Volume = (1/2) × Base × Height × Prism Height = (1/2) × 7 cm × 9 cm × 15 cm = 472.5 cubic centimeters.
5	Calculate the volume of a cuboid with length 12 meters, width 500 centimeters, and height 3 millimeters. Answer: Convert the width and height to meters 500 centimeters = 5 meters, 3 millimeters = 0.003 meters. Volume = Length × Width × Height = 12 meters × 5 meters × 0.003 meters = 0.18 cubic meters.
6	Find the volume of a cylinder with a radius of 6 meters and a height of 2 kilometers. Answer: Convert the height to meters (2 kilometers = 2000 meters). Volume = π × Radius^2 × Height = π × (6 m)^2 × 2000 meters = 72,000π cubic meters (approximately 226,195.08 cubic meters).
7	Problem: Determine the volume of a cylinder with a radius of 2 meters and a height of 75 centimeters. Answer: Convert the height to meters (75 centimeters = 0.75 meters). Volume = π × Radius^2 × Height = π × (2 meters)^2 × 0.75 meters = 3π cubic meters.

8	Determine the volume of a rectangular prism with length 5 kilometers, width 6 meters, and height 40 centimeters. Answer: Convert the length and height to meters 5 kilometers = 5000 meters, 40 centimeters = 0.4 meters. Volume = Length × Width × Height = 5000 meters × 6 meters × 0.4 meters = 12000 cubic meters.
9	Determine the volume of a rectangular prism with length 5 meters, width 3 kilometers, and height 700 millimeters. Answer: Convert the width and height to meters 3 kilometers = 3000 meters, 700 millimeters = 0.7 meters. Volume = Length × Width × Height = 5 meters × 3000 meters × 0.7 meters = 10500 cubic meters.
10	Calculate the volume of a semicircular cylinder with a radius of 2 meters and a cylinder height of 5 meters. Answer: Volume = (π × Radius^2 × Height) x 0.5 = 10π The volume is approximately 31.42 cubic meters.