

MEASUREMENTS

MEASUREMENTS

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. A) 12 square meters

Explanation: The area of a rectangle is calculated by multiplying the length by the width.

Area = 4 meters \times 3 meters = 12 square meters.

2. C) 6 feet

Explanation: 1 yard is equal to 3 feet.

2 yards \times 3 feet/yard = 6 feet.

3. A) 210 minutes

Explanation: 1 hour is 60 minutes, so to convert 3.5 hours to minutes:

3.5 hours \times 60 minutes/hour = 210 minutes.

4. A) 1.5 kilograms

Explanation: 1 kilogram is 1000 grams.

1500 grams \div 1000 = 1.5 kilograms.

5. B) 30 inches

Explanation: The perimeter of a rectangle is calculated by the formula:

Perimeter = 2 \times (length + width) = 2 \times (10 inches + 5 inches) = 2 \times 15 inches = 30 inches.

6. B) 2000 milliliters

Explanation: 1 liter is equal to 1000 milliliters.

2 liters \times 1000 milliliters/liter = 2000 milliliters.

ADVANCED LEVEL

More than One Answer Type

7. a) Area of a rectangle with length 4 meters and width 5 meters = 20 square meters

b) Area of a square with side length 6 centimeters = 36 square centimeters

d) Area of a circle with radius 3 meters = 28.27 square meters

Explanation: The area of a rectangle is length \times width. 4 meters \times 5 meters = 20 square meters.

The area of a square is side \times side. 6 cm \times 6 cm = 36 square centimeters.

The area of a circle is $p \times r^2$. $p \times (3 \text{ meters})^2 = 28.27$ square meters (rounded).

The calculation for the area of the triangle (c) is incorrect. The area of a triangle is 1/

$2 \times \text{base} \times \text{height}$, so $1/2 \times 10 \text{ meters} \times 5 \text{ meters} = 25 \text{ square meters}$, not 50 square meters.

Fill In the Blanks

8. The perimeter is 18 meters.

Explanation: The perimeter of a rectangle is calculated by:

Perimeter = $2 \times (\text{length} + \text{width}) = 2 \times (7 \text{ meters} + 2 \text{ meters}) = 2 \times 9 \text{ meters} = 18 \text{ meters}$.

Matching Type

9. Match the measurement to its corresponding unit of measurement:

1. b. Kilograms (kg)
2. a. Cubic meters (m^3)
3. d. Meters (m)
4. c. Square meters (m^2)

Explanation:

The weight of a watermelon is typically measured in kilograms.

The volume of milk in a carton is measured in cubic meters.

The length of a car is typically measured in meters.

The area of a garden is measured in square meters.

Answer the Following Questions

10. The area is 161.46 square feet.

Explanation: To convert from square meters to square feet, multiply by 10.764 (1 square meter = 10.764 square feet).

Area = 5 meters \times 3 meters = 15 square meters.

15 square meters \times 10.764 square feet/square meter = 161.46 square feet.

11. 3.17 cups

Explanation: 1 cup is approximately 237 milliliters. "750 milliliters \div 237 milliliters/cup \sim 3.17 cups.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. C) Inches

Explanation: The length of a pencil is typically measured in inches.

2. C) Milliliters

Explanation: The volume of a liquid is commonly measured in milliliters.

3. A) 0.5 liters

Explanation: 1 liter = 1000 milliliters.

To convert 500 milliliters to liters:

500 milliliters \div 1000 = 0.5 liters.

4. A) 6 pounds

Explanation: There are 16 ounces in a pound.

$72 \text{ ounces} \div 16 = 6 \text{ pounds}$.

5. B) 60 inches

Explanation: 1 foot = 12 inches.

To convert 5 feet to inches:

$5 \text{ feet} \times 12 \text{ inches/foot} = 60 \text{ inches}$.

6. D) 1 minute

Explanation: 1 minute = 60 seconds.

To convert 90 seconds to minutes:

$90 \text{ seconds} \div 60 = 1 \text{ minute}$.

ADVANCED LEVEL

More than One Answer Type

7. a) 1500 millimeters = 1.5 meters

b) 5 feet = 60 inches

c) 3 meters = 300 centimeters

d) 7 inches = 0.7 feet

Explanation: 1500 millimeters = 1.5 meters (since 1000 millimeters = 1 meter).

5 feet = 60 inches (since 1 foot = 12 inches).

3 meters = 300 centimeters (since 1 meter = 100 centimeters).

7 inches = 0.7 feet (since 12 inches = 1 foot, so $7 \text{ inches} \div 12 = 0.7 \text{ feet}$).

Fill In the Blanks

8. 4 hours is equal to 240 minutes.

Explanation: 1 hour = 60 minutes.

$4 \text{ hours} \times 60 \text{ minutes/hour} = 240 \text{ minutes}$.

Matching Type

9. Match the conversion example to its corresponding conversion factor:

1. C. 1 liter = 1000 milliliters

2. D. 1 foot = 12 inches

3. A. 1 kilogram = 1000 grams

4. B. 1 hour = 60 minutes

Explanation: When converting milliliters to liters, divide by 1000.

To convert feet to inches, multiply by 12.

To convert grams to kilograms, divide by 1000.

To convert hours to minutes, multiply by 60.

Answer the Following Questions

10. 1.5 meters

Explanation: To convert millimeters to meters, divide by 1000.

$1500 \text{ millimeters} \div 1000 = 1.5 \text{ meters}$.

11. 40 ounces

Explanation: There are 16 ounces in a pound.

$2.5 \text{ pounds} \times 16 \text{ ounces/pound} = 40 \text{ ounces.}$

MEASURING LENGTH

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. B) 1250 meters

Explanation: 1 kilometer = 1000 meters.

$1.25 \text{ kilometers} = 1.25 \times 1000 = 1250 \text{ meters.}$

2. C) 3200 millimeters

Explanation: 1 meter = 1000 millimeters.

$3.2 \text{ meters} = 3.2 \times 1000 = 3200 \text{ millimeters.}$

3. B) 40 centimeters

Explanation: 1 meter = 100 centimeters.

$0.4 \text{ meters} = 0.4 \times 100 = 40 \text{ centimeters.}$

4. B) 60 centimeters

Explanation: 1 centimeter = 10 millimeters.

$600 \text{ millimeters} \div 10 = 60 \text{ centimeters.}$

5. B) 750 meters

Explanation: 1 kilometer = 1000 meters.

$0.75 \text{ kilometers} = 0.75 \times 1000 = 750 \text{ meters.}$

6. B) 12 centimeters

Explanation: 1 centimeter = 10 millimeters.

$120 \text{ millimeters} \div 10 = 12 \text{ centimeters.}$

ADVANCED LEVEL

More than One Answer Type

7. a) Converting 4.5 kilometers to meters results in 4500 meters

c) Converting 7 centimeters to millimeters results in 70 millimeters

Explanation: 4.5 kilometers = 4500 meters (since 1 kilometer = 1000 meters).

7 centimeters = 70 millimeters (since 1 centimeter = 10 millimeters).

Fill In the Blanks

8. 15.2 meters is equal to 1520 centimeters.

Explanation: 1 meter = 100 centimeters.

$15.2 \text{ meters} \times 100 = 1520 \text{ centimeters.}$

Matching Type

9. Match the measurement tool to the type of length measurement it is best suited for:

1. C. Measuring the length of a pencil (A ruler is ideal for small items like a pencil).

2. A. Measuring the dimensions of a large room (A tape measure is best suited for larger dimensions).

3. B. Measuring the thickness of a metal sheet (A caliper is ideal for measuring small, precise dimensions like thickness).

Answer the Following Questions

10. The final length in millimeters is $520 \text{ centimeters} \times 10 = 5200 \text{ millimeters.}$

Explanation: $5.2 \text{ meters} = 520 \text{ centimeters}$

$520 \text{ centimeters} \times 10 = 5200 \text{ millimeters.}$

11. $2.75 \text{ inches} = 69.85 \text{ millimeters.}$

Explanation: 1 inch = 25.4 millimeters.

$2.75 \text{ inches} \times 25.4 \text{ millimeters/inch} = 69.85 \text{ millimeters.}$

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. B) Tape Measure

Explanation: A tape measure is the most common tool used to measure the height of a person, especially for longer measurements.

2. B) Centimeters

Explanation: A pencil is a small object, and centimeters are the most suitable unit for measuring its length.

3. B) 450 centimeters

Explanation: 1 meter = 100 centimeters.

$4.5 \text{ meters} \times 100 = 450 \text{ centimeters.}$

4. A) 1.5 meters

Explanation: 1 meter = 100 centimeters.

$150 \text{ centimeters} \div 100 = 1.5 \text{ meters.}$

5. B) 2000 meters

Explanation: 1 kilometer = 1000 meters. $2 \text{ kilometers} \times 1000 = 2000 \text{ meters.}$

6. A) 150 millimeters

Explanation: 1 centimeter = 10 millimeters. "15 centimeters \times 10 = 150 millimeters.

ADVANCED LEVEL

More than One Answer Type

7. a) Ruler, b) Tape Measure, d) Caliper

Explanation: A ruler, tape measure, and caliper are all appropriate tools for measuring length. A thermometer is used for measuring temperature, not length.

Fill In the Blanks

8. 24 centimeters is equal to 240 millimeters.

Explanation: 1 centimeter = 10 millimeters.

24 centimeters \times 10 = 240 millimeters.

Matching Type

9. Match the length conversion example to its correct result:

1. B. 4000 meters (1 kilometer = 1000 meters; 4 kilometers = $4 \times 1000 = 4000$ meters).

2. C. 0.25 meters (250 centimeters = $250 \div 100 = 0.25$ meters).

3. D. 1.5 centimeters (15 millimeters = $15 \div 10 = 1.5$ centimeters).

4. A. 5000 millimeters (5 meters = $5 \times 1000 = 5000$ millimeters).

Answer the Following Questions

10. 3.75 kilometers = 3750 meters.

Explanation: 1 kilometer = 1000 meters.

3.75 kilometers \times 1000 = 3750 meters.

11. 150,000 centimeters = 1.5 kilometers.

Explanation: 100,000 centimeters = 1 kilometer.

150,000 \div 100,000 = 1.5 kilometers.

MEASURING MASS

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. C) 5,000 grams

Explanation: 1 kilogram = 1000 grams.

5 kilograms \times 1000 = 5000 grams.

2. A) 1,250 milliliters

Explanation: 1 liter = 1000 milliliters.

$1.25 \text{ liters} \times 1000 = 1250 \text{ milliliters.}$

3. B) 0.75 kilograms

Explanation: 1 kilogram = 1000 grams.

$750 \text{ grams} \div 1000 = 0.75 \text{ kilograms.}$

4. B) 800 milliliters

Explanation: 1 liter = 1000 milliliters.

$0.8 \text{ liters} \times 1000 = 800 \text{ milliliters.}$

5. B) 4.5 liters

Explanation: 1 liter = 1000 milliliters.

$4500 \text{ milliliters} \div 1000 = 4.5 \text{ liters.}$

6. A) 0.75 liters

Explanation: 1 liter = 1000 milliliters.

$750 \text{ milliliters} \div 1000 = 0.75 \text{ liters.}$

ADVANCED LEVEL

More than One Answer Type

7. a) A parcel weighing 2.5 kilograms is 2,500 grams

b) A canister with a mass of 0.8 kilograms weighs 800 grams

c) A weight of 15 grams is equivalent to 0.015 kilograms

d) A package of flour weighing 4.2 kilograms is 4,200 grams

Explanation: All of these scenarios are correct conversions.

Fill In the Blanks

8. 0.85 liters is equal to 850 milliliters.

Explanation: 1 liter = 1000 milliliters.

$0.85 \text{ liters} \times 1000 = 850 \text{ milliliters.}$

Matching Type

9. Match the capacity measurement example to its correct conversion result:

1. B. 3,000 milliliters (3 liters = $3 \times 1000 = 3000$ milliliters)

2. C. 600 milliliters (0.6 liters = $0.6 \times 1000 = 600$ milliliters)

3. D. 2,500 milliliters (2.5 liters = $2.5 \times 1000 = 2500$ milliliters)

4. A. 800 milliliters (0.8 liters = $0.8 \times 1000 = 800$ milliliters)

Answer the Following Questions

10. 2.3 liters = 2300 milliliters

Explanation: 1 liter = 1000 milliliters.

$2.3 \text{ liters} \times 1000 = 2300 \text{ milliliters.}$

11. 0.65 kilograms = 650 grams

Explanation: 1 kilogram = 1000 grams. $0.65 \text{ kilograms} \times 1000 = 650 \text{ grams}$.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. B) Grams

Explanation: Grams are commonly used to measure the mass of small objects, such as a coin.

2. C) 4,500 grams

Explanation: 1 kilogram = 1000 grams.

$4.5 \text{ kilograms} \times 1000 = 4500 \text{ grams}$.

3. C) 2,500 grams

Explanation: 1 kilogram = 1000 grams.

$0.25 \text{ kilograms} \times 1000 = 250 \text{ grams}$.

4. B) Milliliters

Explanation: Milliliters are commonly used to measure the volume of small liquids, such as a small cup of milk.

5. A) 0.5 liters

Explanation: 1 liter = 1000 milliliters.

$500 \text{ milliliters} \div 1000 = 0.5 \text{ liters}$.

6. B) 2,200 milliliters

Explanation: 1 liter = 1000 milliliters.

$2.2 \text{ liters} \times 1000 = 2200 \text{ milliliters}$.

ADVANCED LEVEL

More than One Answer Type

7. a) 3 liters = 3,000 milliliters

c) 1.5 liters = 1,500 milliliters

Explanation: 1 liter = 1000 milliliters, so both of these conversions are accurate.

Fill In the Blanks

8. 7.2 kilograms is equal to 7,200 grams.

Explanation: 1 kilogram = 1000 grams.

$7.2 \text{ kilograms} \times 1000 = 7,200 \text{ grams}$.

Matching Type

9. Match the mass measurement example to its correct conversion result:

1. b. 4,500 grams (4.5 kilograms = $4.5 \times 1000 = 4500$ grams)
2. c. 200 grams (0.2 kilograms = $0.2 \times 1000 = 200$ grams)
3. d. 7,000 grams (7 kilograms = $7 \times 1000 = 7000$ grams)
4. a. 1,250 grams (1.25 kilograms = $1.25 \times 1000 = 1250$ grams)

Answer the Following Questions

10. 350 milliliters = 0.35 liters

Explanation: 1 liter = 1000 milliliters.

$350 \text{ milliliters} \div 1000 = 0.35 \text{ liters.}$

11. 4,500 grams = 4.5 kilograms

Explanation: 1 kilogram = 1000 grams.

$4500 \text{ grams} \div 1000 = 4.5 \text{ kilograms.}$