Measuring Length

Lengths are measured in customary units (inches, feet, yards) or metric units (centimeters, meters). Picking the right unit depends on the size of what you are measuring.

Customary	Metric
1 foot = 12 inches	1 meter = 100 centimeters
1 yard = 3 feet = 36 inches	1 kilometer = 1,000 meters

Key Concepts

1. **Customary** units of length: inch, foot, yard, mile. **Metric** units: centimeter, meter, kilometer. The two systems are completely separate — don't mix them.

2. Conversions: 12 in = 1 ft; 3 ft = 1 yd; 100 cm = 1 m. To go from a bigger unit to a smaller one, multiply. From smaller to bigger, divide.

3. Pick a unit that matches the size: inches for short things (a pencil), feet for room-sized things, yards or meters for fields, miles or kilometers for trips.

4. To compare lengths in different units, first convert both to the same unit.

Worked Examples

① Convert 4 feet to inches.

Going from a bigger unit (feet) to a smaller one (inches), so multiply. One foot has 12 inches, so four feet has $4 \times 12 = 48$ inches.

Answer: 48 *inches*

② Which unit is best to measure the length of a classroom: inches, feet, or yards?

Inches are way too small (a typical classroom is hundreds of inches), and yards are reasonable but feet are most common in the U.S. for room-size measurements. *Feet* is the best fit.

Answer: *Feet*

③ A ribbon is 2 meters long. How many centimeters is that?

Going from meters (bigger) to centimeters (smaller), so multiply. 1 meter = 100 centimeters, so 2 meters $= 2 \times 100 = 200$ centimeters.

Answer: 200 *cm*

Practice Problems

Convert or choose the best unit.

1. 3 ft = ? in _____

2. 2 yd = ? ft _____

3. 5 m = ? cm _____

4. 36 in = ? ft _____

5. 9 ft = ? yd _____

6. 400 cm = ? m _____

7. Best unit for a book: in, ft, yd? _____

8. Best unit for a football field? _____

9. 6 ft = ? in _____

10. 1 yd = ? in _____

11. 7 m = ? cm _____

12. 24 in = ? ft _____

Study Tips

- ☞ To convert a bigger unit into a smaller one, multiply. To go the other way, divide.
- ☞ Memorize the three key conversions: 12 in = 1 ft, 3 ft = 1 yd, 100 cm = 1 m. The rest of measurement gets easier.
- ☞ Imagine the object before you pick a unit. Could you measure a pencil in yards? Sure, but the numbers would be tiny — inches are friendlier.

✍ Word Problems

1. A table is 5 feet long. A shelf is 48 inches long. Which one is longer?

Answer: _____

2. Maria's ribbon is 3 meters long. She cuts off 150 centimeters. How many centimeters of ribbon are left?

Answer: _____

Answer Key — with Friendly Explanations

Practice Problems

1. $3 \times 12 = 36$ inches.

Answer: 36 *in*

2. $2 \times 3 = 6$ feet.

Answer: 6 *ft*

3. $5 \times 100 = 500$ cm.

Answer: 500 *cm*

4. $36 \div 12 = 3$ feet.

Answer: 3 *ft*

5. $9 \div 3 = 3$ yards.

Answer: 3 *yd*

6. $400 \div 100 = 4$ meters.

Answer: 4 *m*

7. A book is small — inches fit best.

Answer: *Inches*

8. A football field is long — yards (or meters) fit best.

Answer: *Yards*

9. $6 \times 12 = 72$ inches.

Answer: 72 *in*

10. 1 yd $= 36$ in (since $1 \times 3 \times 12 = 36$).

Answer: 36 *in*

11. $7 \times 100 = 700$ cm.

Answer: 700 *cm*

12. $24 \div 12 = 2$ feet.

Answer: 2 *ft*

Word Problems

1. 5 ft $= 60$ in > 48 in.

Answer: *Table is longer*

2. 3 m $= 300$ cm; $300 - 150 = 150$.

Answer: 150 *cm left*

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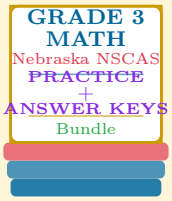

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