

Multiplication as Scaling

Name: _____

Grade 5 · Tell if a product will be greater or less than a factor, without multiplying

How it works

Multiplying **scales** a number: it stretches it or shrinks it.

Multiply by a number **greater than 1** and the product is **greater** than the number you started with.

Multiply by a fraction **less than 1** and the product is **less**.

Multiply by a fraction **equal to 1**, such as $\frac{4}{4}$, and it stays the **same**.

$$8 \times 1\frac{1}{2} = 12 \quad \text{greater than 8}$$

$$8 \times \frac{3}{4} = 6 \quad \text{less than 8}$$

$$8 \times \frac{4}{4} = 8 \quad \text{equal to 8}$$

A. Do not multiply. Circle what the product will be.

- | | | | | | | |
|----|-----------------------------------|---------|---------------------------------|--------------------------------|------------------------------------|---------------|
| 1. | $8 \times \frac{3}{4}$ | will be | ☐ less than | ☐ equal to | ☐ greater than | 8 |
| 2. | $12 \times 1\frac{1}{2}$ | will be | ☐ less than | ☐ equal to | ☐ greater than | 12 |
| 3. | $6 \times \frac{5}{5}$ | will be | ☐ less than | ☐ equal to | ☐ greater than | 6 |
| 4. | $\frac{2}{3} \times \frac{1}{2}$ | will be | ☐ less than | ☐ equal to | ☐ greater than | $\frac{2}{3}$ |
| 5. | $20 \times \frac{7}{4}$ | will be | ☐ less than | ☐ equal to | ☐ greater than | 20 |
| 6. | $\frac{3}{4} \times 2\frac{1}{3}$ | will be | ☐ less than | ☐ equal to | ☐ greater than | $\frac{3}{4}$ |
| 7. | $15 \times \frac{9}{10}$ | will be | ☐ less than | ☐ equal to | ☐ greater than | 15 |
| 8. | $\frac{5}{6} \times \frac{3}{3}$ | will be | ☐ less than | ☐ equal to | ☐ greater than | $\frac{5}{6}$ |

B. Do not multiply. Write >, < or = in the circle.

- | | | | | | | | |
|----|----------------------------------|----------------------|---------------|----|------------------------------------|----------------------|---------------|
| 1. | $\frac{5}{6} \times 12$ | <input type="text"/> | 12 | 2. | $2\frac{1}{3} \times 7$ | <input type="text"/> | 7 |
| 3. | $\frac{4}{4} \times 9$ | <input type="text"/> | 9 | 4. | $\frac{3}{2} \times \frac{1}{2}$ | <input type="text"/> | $\frac{1}{2}$ |
| 5. | $\frac{1}{3} \times \frac{3}{4}$ | <input type="text"/> | $\frac{3}{4}$ | 6. | $1\frac{1}{8} \times 40$ | <input type="text"/> | 40 |
| 7. | $\frac{7}{8} \times \frac{2}{5}$ | <input type="text"/> | $\frac{2}{5}$ | 8. | $\frac{10}{10} \times \frac{5}{9}$ | <input type="text"/> | $\frac{5}{9}$ |

C. Do not multiply. Answer the questions.

Ana's plant is 10 inches tall. Ben's plant is $1\frac{1}{2}$ times as tall as Ana's. Cal's plant is $\frac{3}{4}$ as tall as Ana's.

Whose plant is the tallest? _____

Whose plant is the shortest? _____

Multiplication as Scaling (Answer Key)

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B. Do not multiply. Write >, < or = in the circle.

- | | | | | | | | |
|----|----------------------------------|------------------------------------|---------------|----|------------------------------------|------------------------------------|---------------|
| 1. | $\frac{5}{6} \times 12$ | ☒ < | 12 | 2. | $2\frac{1}{3} \times 7$ | ☒ > | 7 |
| 3. | $\frac{4}{4} \times 9$ | ☒ = | 9 | 4. | $\frac{3}{2} \times \frac{1}{2}$ | ☒ > | $\frac{1}{2}$ |
| 5. | $\frac{1}{3} \times \frac{3}{4}$ | ☒ < | $\frac{3}{4}$ | 6. | $1\frac{1}{8} \times 40$ | ☒ > | 40 |
| 7. | $\frac{7}{8} \times \frac{2}{5}$ | ☒ < | $\frac{2}{5}$ | 8. | $\frac{10}{10} \times \frac{5}{9}$ | ☒ = | $\frac{5}{9}$ |

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Whose plant is the tallest? Ben

Whose plant is the shortest? Cal