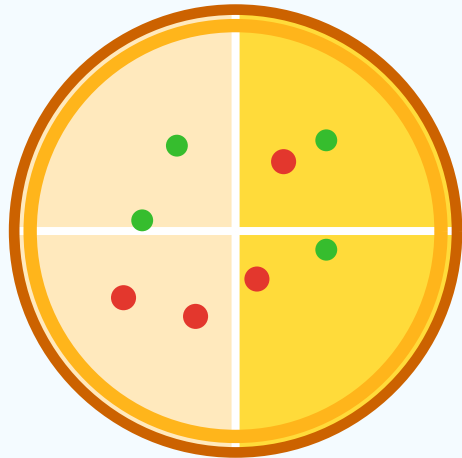


Why does $2/4 = 1/2$?

Because they cover the same amount of the same whole

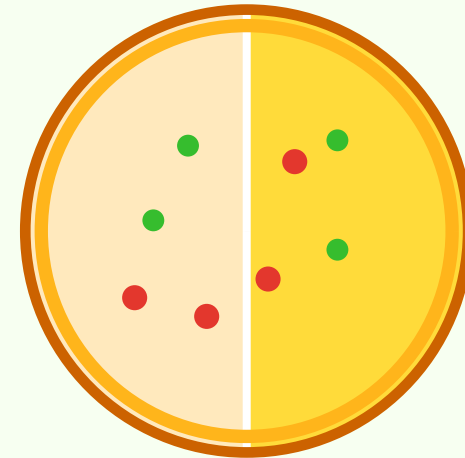
1



2 fourths = $2/4$

2 out of 4 equal pieces

2



1 half = $1/2$

1 out of 2 equal pieces

Same
size!

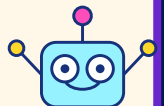
Mission: shade each pair so both pictures show the same amount.

$1/2 = 2/4$

$1/3 = 2/6$

$3/4 = 6/8$

$2/5 = 4/10$





Fraction Shrinking Machine

Simplify by dividing the top and bottom by the same number

How the machine works



$\frac{4}{8}$

divide by 4



$\frac{1}{2}$

Same amount,
smaller numbers!

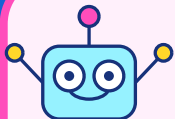
Normal Mode: simplify these

1. $\frac{2}{4} =$ _____ 2. $\frac{3}{6} =$ _____ 3. $\frac{5}{10} =$ _____

4. $\frac{6}{8} =$ _____ 5. $\frac{8}{12} =$ _____ 6. $\frac{9}{12} =$ _____

7. $\frac{10}{15} =$ _____ 8. $\frac{12}{16} =$ _____ 9. $\frac{14}{21} =$ _____

10. $\frac{18}{24} =$ _____ 11. $\frac{20}{25} =$ _____ 12. $\frac{24}{36} =$ _____



Boss Battle: Correct the robot mistake: $\frac{6}{10} = \frac{3}{10}$

Correct answer: _____

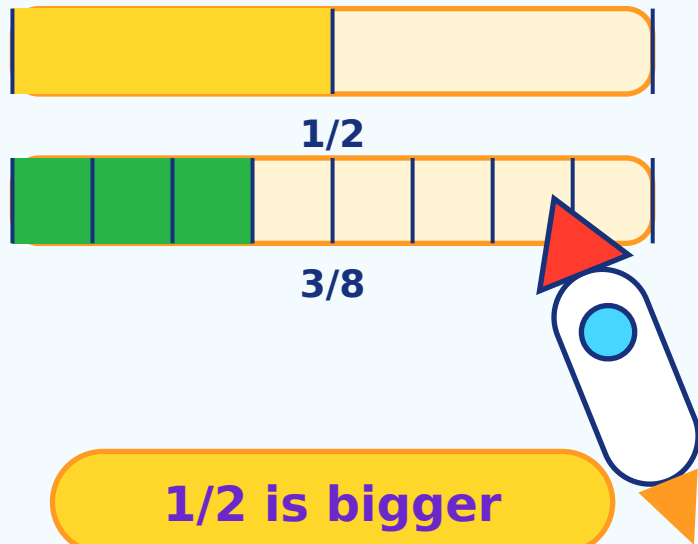
Hint: do the same thing to the top and the bottom.

Rocket Race: Which Fraction Is Bigger?

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Use bars to compare the space each fraction covers

Launch Example



The yellow bar reaches farther.

Choose $>$, $<$, or $=$

$\frac{1}{3}$ $\frac{1}{2}$

$\frac{3}{4}$ $\frac{2}{4}$

$\frac{2}{6}$ $\frac{1}{3}$

$\frac{5}{8}$ $\frac{3}{8}$

$\frac{4}{10}$ $\frac{1}{2}$

$\frac{2}{5}$ $\frac{3}{5}$

$\frac{6}{12}$ $\frac{1}{2}$

$\frac{7}{9}$ $\frac{7}{10}$

Power Hint: when the bottom number is the same, compare the top number.

When the top number is the same, smaller pieces can mean a smaller total.



Alien Snack Bars: Add Fractions

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Same denominator = same kind of pieces

Example



$$\frac{1}{5} +$$



$$\frac{3}{5} =$$



$$\frac{4}{5}$$

1 fifth + 3 fifths = 4 fifths

Solve the snack missions

1. $\frac{1}{6} + \frac{2}{6} = \underline{\quad}$

2. $\frac{3}{8} + \frac{2}{8} = \underline{\quad}$

3. $\frac{4}{10} + \frac{1}{10} = \underline{\quad}$

4. $\frac{2}{7} + \frac{3}{7} = \underline{\quad}$

5. $\frac{5}{12} + \frac{4}{12} = \underline{\quad}$

6. $\frac{1}{9} + \frac{6}{9} = \underline{\quad}$

7. $\frac{2}{5} + \frac{2}{5} = \underline{\quad}$

8. $\frac{3}{11} + \frac{5}{11} = \underline{\quad}$

Draw it: create your own alien bar for $\frac{2}{8} + \frac{5}{8}$.



Maths Universe Answer Key

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Quick check for teachers and space cadets

Page 1 - Equivalent Fractions

$1/2 = 2/4$, $1/3 = 2/6$, $3/4 = 6/8$, $2/5 = 4/10$

Page 2 - Simplify

1) $1/2$ 2) $1/2$ 3) $1/2$ 4) $3/4$ 5) $2/3$ 6) $3/4$ 7) $2/3$ 8) $3/4$ 9) $2/3$ 10) $3/4$ 11) $4/5$ 12) $2/3$

Boss Battle: $6/10 = 3/5$

Page 3 - Compare

1) $<$ 2) $>$ 3) $=$ 4) $>$ 5) $<$ 6) $<$ 7) $=$ 8) $>$

Page 4 - Add Fractions

1) $3/6$ or $1/2$ 2) $5/8$ 3) $5/10$ or $1/2$ 4) $5/7$ 5) $9/12$ or $3/4$ 6) $7/9$ 7) $4/5$ 8) $8/11$

Tip: Let learners colour the pictures first, then write the number sentence.