

MathShed

Lesson 7: To be able to add and subtract fractions
with the same denominator



To be able to add and subtract fractions with the same denominator

Success criteria:

- ✓ I can use pictorial and abstract strategies to add and subtract fractions that share the same denominator
- ✓ I can explain my reasoning when using pictorial and abstract strategies to add and subtract fractions that share the same denominator

Think Aloud -

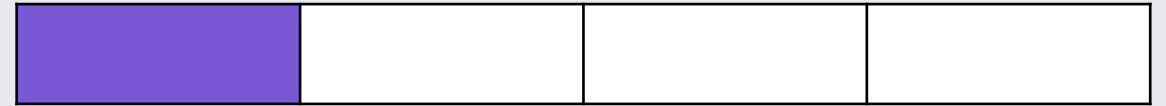
<https://www.loom.com/share/99d5c81af881485184a0c9100db97c7a>



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Talking Time:

Use the bar models to help you complete the calculation below.



$$\frac{3}{4} + \frac{2}{4} = \frac{5}{4}$$

Think Aloud -

<https://www.loom.com/share/9814680fcbf3433795d41b68718f0b35>



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Talking Time:

Use the bar models to help you complete the calculation below.



$$\frac{4}{5} + \frac{3}{5} = \frac{7}{5}$$

Think Aloud -

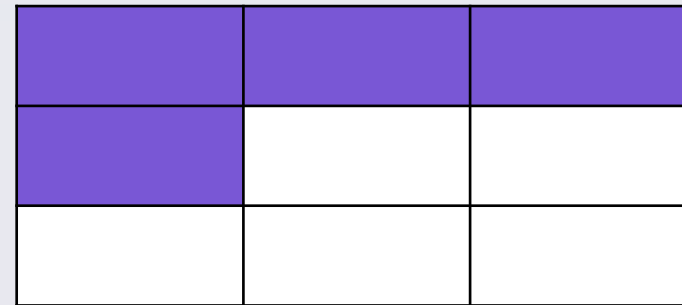
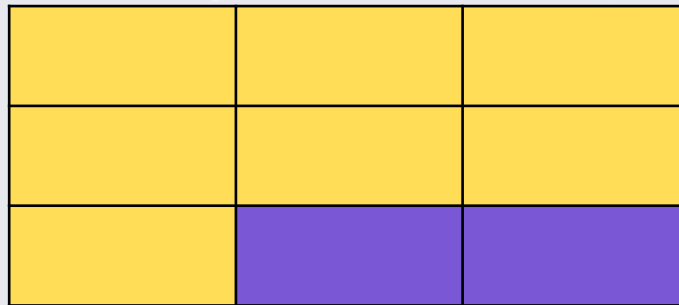
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Talking Time:

Use the diagrams to help you complete the calculation below.



$$\frac{7}{9} + \frac{6}{9} = \frac{13}{9}$$

Think Aloud -

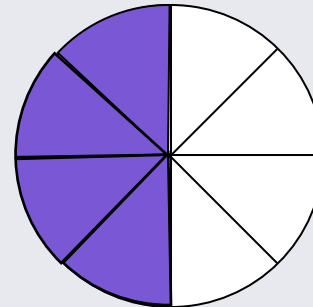
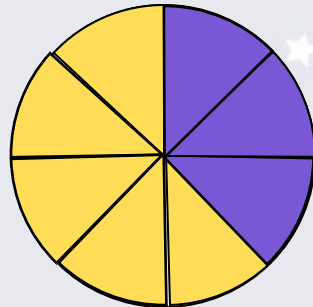
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Talking Time:

Use the diagrams to help you complete the calculation below.



$$\frac{5}{8} + \frac{7}{8} = \frac{12}{8}$$



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Have a go at solving each of these questions.

Activity 1:

Use bar models or diagrams to complete the following:

a)

$$\frac{2}{3} + \frac{2}{3} =$$



b)

$$\frac{4}{5} + \frac{5}{5} =$$

$$\frac{4}{5} + \frac{3}{5} = \frac{7}{5}$$

c)

$$\frac{5}{7} + \frac{6}{7} =$$

Answers:

Activity 1:

Use bar models or diagrams to complete the following:

a)

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



b)

$$\frac{4}{5} + \frac{5}{5} = \frac{9}{5}$$

$$\frac{4}{5} + \frac{3}{5} = \frac{7}{5}$$

c)

$$\frac{5}{7} + \frac{6}{7} = \frac{11}{7}$$

Think Aloud -

<https://www.loom.com/share/01b54003fbe9488db5df8b7cadc2e507>

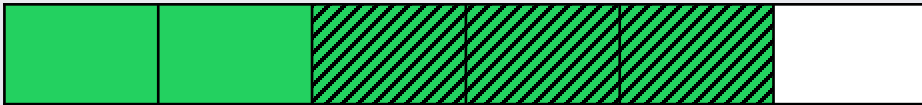


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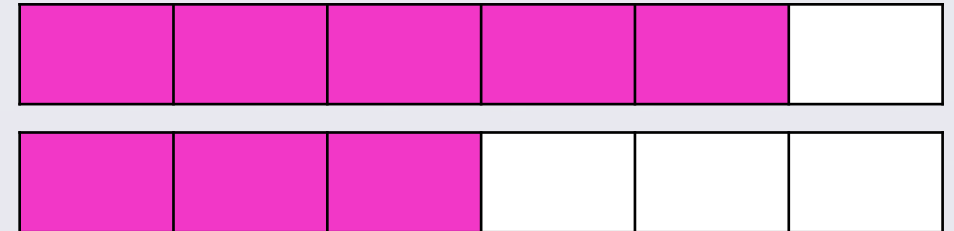
Talking Time:

Jamal uses two different bar modelling strategies to calculate $\frac{5}{6} - \frac{3}{6}$.

taking away



finding the difference



$$\frac{5}{6} - \frac{3}{6} = \frac{2}{6}$$

$$\frac{2}{6}$$

Think Aloud -

<https://www.loom.com/share/0928024bd54e4aefbf1b7fda812b2dc0>



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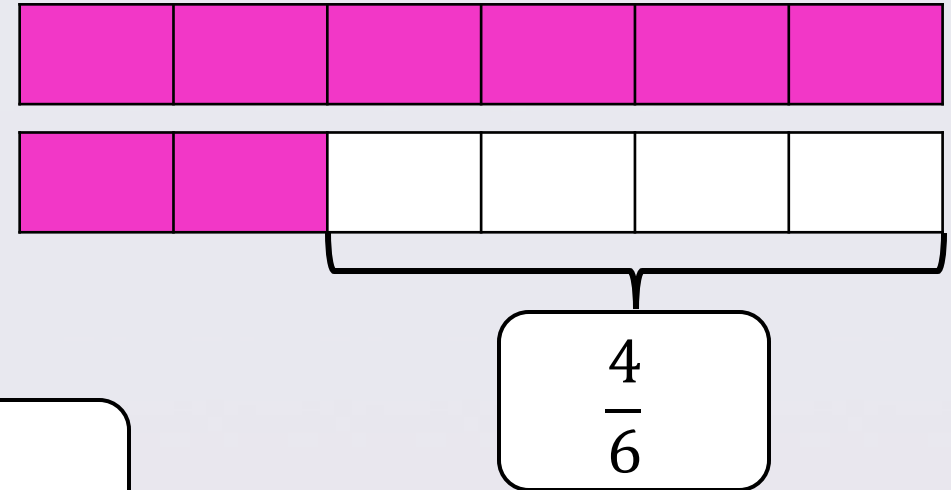
Talking Time:

Jamal uses two different bar modelling strategies to calculate $\frac{6}{6} - \frac{2}{6}$.

taking away



finding the difference



$$\frac{6}{6} - \frac{2}{6} = \frac{4}{6}$$

Think Aloud -

<https://www.loom.com/share/2022791b9a1a47c6a0cba8e743872805>



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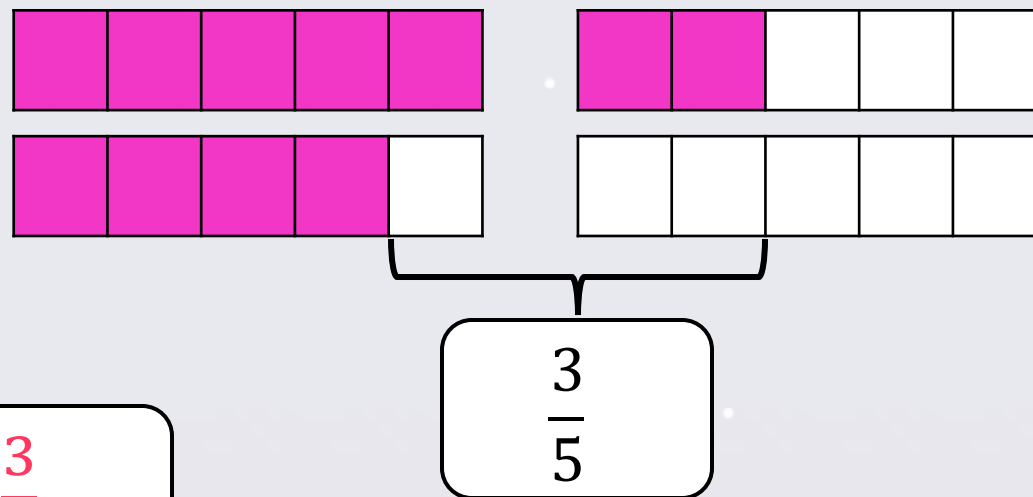
Talking Time:

Jamal uses two different bar modelling strategies to calculate $\frac{7}{5} - \frac{4}{5}$.

taking away



finding the difference



$$\frac{7}{5} - \frac{4}{5} = \frac{3}{5}$$



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Solve these independently.

Activity 2:

Use your preferred bar modelling strategy to solve the following:

a)

$$\frac{7}{8} - \frac{4}{8} =$$

b)

$$1 - \frac{3}{7} =$$

c)

$$\frac{8}{6} - \frac{3}{6} =$$

taking away



finding the difference



$$\frac{2}{6}$$

$$\frac{5}{6} - \frac{3}{6} = \frac{2}{6}$$

Answers:

Activity 2:

Use your preferred bar modelling strategy to solve the following:

a)

$$\frac{7}{8} - \frac{4}{8} = \frac{3}{8}$$

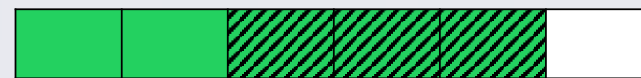
b)

$$1 - \frac{3}{7} = \frac{4}{7}$$

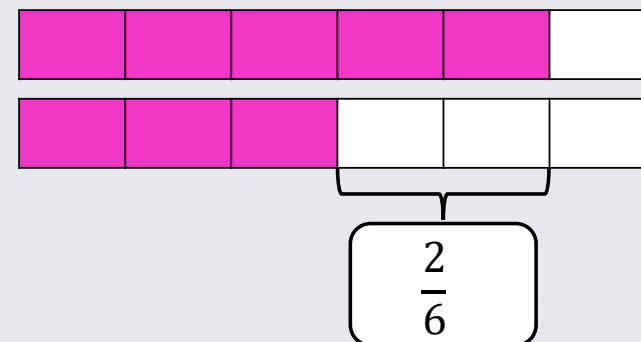
c)

$$\frac{8}{6} - \frac{3}{6} = \frac{5}{6}$$

taking away



finding the difference



$$\frac{5}{6} - \frac{3}{6} = \frac{2}{6}$$

Think Aloud -

<https://www.loom.com/share/be3f982e6e834a4dacd968c46d377443>



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Talking Time:

Use the bar models to help you complete the number sentence below.



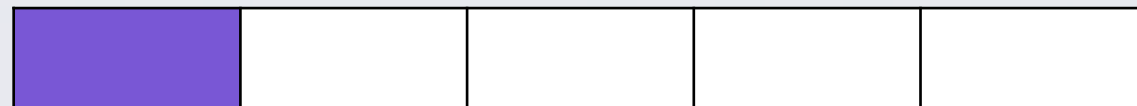
$$\frac{3}{5} + \frac{3}{5} = \frac{4}{5} + -$$

Answers:



Talking Time:

Use the bar models to help you complete the number sentence below.



$$\frac{3}{5} + \frac{3}{5} = \frac{4}{5} + \frac{2}{5}$$

Have a go at solving these. Draw bar models to help you. Feel free to use different colours too, just like I have been.

Activity 3:

Complete the number sentences below:

a)

$$\frac{5}{6} + \frac{4}{6} = - + \frac{3}{6}$$

b)

$$\frac{7}{7} + \frac{4}{7} = \frac{6}{7} + -$$

c)

$$\frac{9}{10} - \frac{4}{10} = - - \frac{2}{10}$$

Answers:

Activity 3:

Complete the number sentences below:

a)

$$\frac{5}{6} + \frac{4}{6} = \frac{6}{6} + \frac{3}{6}$$

b)

$$\frac{7}{7} + \frac{4}{7} = \frac{6}{7} + \frac{5}{7}$$

c)

$$\frac{9}{10} - \frac{4}{10} = \frac{7}{10} - \frac{2}{10}$$

Problem

Solving: <https://www.loom.com/share/86134e981a6d4bfbbc4318a032f3a97f>



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Activity 4:

How many different ways can you complete the number sentence below?

$$\frac{4}{10} + \frac{\quad}{10} = \frac{\quad}{10} + \frac{3}{10}$$

Answers:

Activity 4:

How many different ways can you complete the number sentence below?

$$\frac{4}{10} + \frac{\quad}{10} = \frac{\quad}{10} + \frac{3}{10}$$

Example solutions:

$$\frac{4}{10} + \frac{0}{10} = \frac{1}{10} + \frac{3}{10}$$

$$\frac{4}{10} + \frac{1}{10} = \frac{2}{10} + \frac{3}{10}$$

$$\frac{4}{10} + \frac{2}{10} = \frac{3}{10} + \frac{3}{10}$$

$$\frac{4}{10} + \frac{4}{10} = \frac{5}{10} + \frac{3}{10}$$

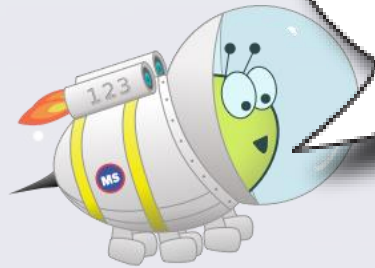
$$\frac{4}{10} + \frac{5}{10} = \frac{6}{10} + \frac{3}{10}$$

$$\frac{4}{10} + \frac{6}{10} = \frac{7}{10} + \frac{3}{10}$$

Reasoning:

Evaluation:

If you add two fractions with the same denominator, one with an even numerator, the other with an odd numerator, the result will have an even numerator.



Is Astrobee's statement always, sometimes or never true?

Give examples to prove your answer.

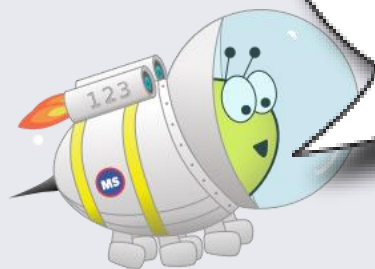
Explain your answer.

Answers:



Evaluation:

If you add two fractions with the same denominator, one with an even numerator, the other with an odd numerator, the result will have an even numerator.



Astrobee's statement is never true. For example, $\frac{10}{12} - \frac{3}{12} = \frac{7}{12}$,
 $\frac{6}{8} - \frac{1}{8} = \frac{5}{8}$ and $\frac{8}{9} - \frac{7}{9} = \frac{1}{9}$.