

Recognize that the fraction depends on the whole

NAME	DATE	SCORE / 10
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1 Ivy cuts off $\frac{2}{3}$ of a short rope. Ben cuts off $\frac{2}{3}$ of a long rope. Whose piece is longer, and why?

- ☐ Ivy's piece, because $\frac{2}{3}$ of a shorter rope is longer.
- ☐ The pieces are the same length, because both are $\frac{2}{3}$.
- ☐ Ben's piece, because $\frac{2}{3}$ of a longer rope is longer.

2 Emma cuts off $\frac{1}{4}$ of a short ribbon. Ivy cuts off $\frac{1}{4}$ of a long ribbon. Emma says the two pieces are the same length, because both are $\frac{1}{4}$. Explain why Emma is not right.

3 Ivy cuts off $\frac{2}{3}$ of a long rope. Maya cuts off $\frac{2}{3}$ of a short rope. Whose piece is longer, and why?

- ☐ Ivy's piece, because $\frac{2}{3}$ of a longer rope is longer.
- ☐ Maya's piece, because $\frac{2}{3}$ of a shorter rope is longer.
- ☐ The pieces are the same length, because both are $\frac{2}{3}$.

4

Emma cuts off $\frac{2}{3}$ of a short rope. Ana cuts off $\frac{2}{3}$ of a long rope. Emma says the two pieces are the same length, because both are $\frac{2}{3}$. Explain why Emma is not right.

5

Noah eats $\frac{1}{4}$ of a small cake. Ivy eats $\frac{1}{4}$ of a large cake. Who eats more cake, and why?

- ☐ Noah, because $\frac{1}{4}$ of a smaller whole is more.
- ☐ Both eat the same amount, because both eat $\frac{1}{4}$.
- ☐ Ivy, because $\frac{1}{4}$ of a larger whole is more.

6

Maya cuts off $\frac{1}{4}$ of a short ribbon. Emma cuts off $\frac{1}{4}$ of a long ribbon. Maya says the two pieces are the same length, because both are $\frac{1}{4}$. Explain why Maya is not right.

7

Ivy cuts off $\frac{1}{4}$ of a long ribbon. Emma cuts off $\frac{1}{4}$ of a short ribbon. Whose piece is longer, and why?

- ☐ Emma's piece, because $\frac{1}{4}$ of a shorter ribbon is longer.
- ☐ The pieces are the same length, because both are $\frac{1}{4}$.
- ☐ Ivy's piece, because $\frac{1}{4}$ of a longer ribbon is longer.

8

Cleo cuts off $\frac{1}{3}$ of a short ribbon. Noah cuts off $\frac{1}{3}$ of a long ribbon. Cleo says the two pieces are the same length, because both are $\frac{1}{3}$. Explain why Cleo is not right.

9

Maya cuts off $\frac{1}{2}$ of a short rope. Cleo cuts off $\frac{1}{2}$ of a long rope. Whose piece is longer, and why?

- ☐ Maya's piece, because $\frac{1}{2}$ of a shorter rope is longer.
- ☐ Cleo's piece, because $\frac{1}{2}$ of a longer rope is longer.
- ☐ The pieces are the same length, because both are $\frac{1}{2}$.

- 10** Ben cuts off $\frac{1}{3}$ of a short ribbon. Leo cuts off $\frac{1}{3}$ of a long ribbon. Ben says the two pieces are the same length, because both are $\frac{1}{3}$. Explain why Ben is not right.

Recognize that the fraction depends on the whole

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- 1

Ben's piece, because $\frac{2}{3}$ of a longer rope is longer.
- 3

Ivy's piece, because $\frac{2}{3}$ of a longer rope is longer.
-
- 5

Ivy, because $\frac{1}{4}$ of a larger whole is more.
- 7

Ivy's piece, because $\frac{1}{4}$ of a longer ribbon is longer.
-
- 9

Cleo's piece, because $\frac{1}{2}$ of a longer rope is longer.
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2 A written explanation

Ivy's ribbon 

Emma's

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A model answer: Emma's piece is $\frac{1}{4}$ of the short ribbon, and Ivy's piece is $\frac{1}{4}$ of the long ribbon. $\frac{1}{4}$ tells how much of its own whole is taken, so it depends on the whole. $\frac{1}{4}$ of a long ribbon is longer than $\frac{1}{4}$ of a short one, so Ivy's piece is longer.

What counts as right: Counts as right if it makes these points: (1) the two wholes are not the same size — one ribbon is longer; (2) $\frac{1}{4}$ means $\frac{1}{4}$ of its own whole, so the same fraction of a bigger whole is more; (3) so Ivy's piece is longer, and the pieces are not the same length. Only "both are $\frac{1}{4}$, so they are different" or a guess at which is longer, with no word about the wholes, does not count.

4

A written explanation

Ana's rope



Emma's



A model answer: Emma's piece is $\frac{2}{3}$ of the short rope, and Ana's piece is $\frac{2}{3}$ of the long rope. $\frac{2}{3}$ tells how much of its own whole is taken, so it depends on the whole. $\frac{2}{3}$ of a long rope is longer than $\frac{2}{3}$ of a short one, so Ana's piece is longer.

What counts as right: Counts as right if it makes these points: (1) the two wholes are not the same size — one rope is longer; (2) $\frac{2}{3}$ means $\frac{2}{3}$ of its own whole, so the same fraction of a bigger whole is more; (3) so Ana's piece is longer, and the pieces are not the same length. Only "both are $\frac{2}{3}$, so they are different" or a guess at which is longer, with no word about the wholes, does not count.

6

A written explanation

Emma's



Maya's



A model answer: Maya's piece is $\frac{1}{4}$ of the short ribbon, and Emma's piece is $\frac{1}{4}$ of the long ribbon. $\frac{1}{4}$ tells how much of its own whole is taken, so it depends on the whole. $\frac{1}{4}$ of a long ribbon is longer than $\frac{1}{4}$ of a short one, so Emma's piece is longer.

What counts as right: Counts as right if it makes these points: (1) the two wholes are not the same size — one ribbon is longer; (2) $\frac{1}{4}$ means $\frac{1}{4}$ of its own whole, so the same fraction of a bigger whole is more; (3) so Emma's piece is longer, and the pieces are not the same length. Only "both are $\frac{1}{4}$, so they are different" or a guess at which is longer, with no word about the wholes, does not count.

8

A written explanation

Noah's ribbon



Cleo's ribbon



A model answer: Cleo's piece is $\frac{1}{3}$ of the short ribbon, and Noah's piece is $\frac{1}{3}$ of the long ribbon. $\frac{1}{3}$ tells how much of its own whole is taken, so it depends on the whole. $\frac{1}{3}$ of a long ribbon is longer than $\frac{1}{3}$ of a short one, so Noah's piece is longer.

What counts as right: Counts as right if it makes these points: (1) the two wholes are not the same size — one ribbon is longer; (2) $\frac{1}{3}$ means $\frac{1}{3}$ of its own whole, so the same fraction of a bigger whole is more; (3) so Noah's piece is longer, and the pieces are not the same length. Only "both are $\frac{1}{3}$, so they are different" or a guess at which is longer, with no word about the wholes, does not count.

10

A written explanation

Leo's ribbon



Ben's ribbon



A model answer: Ben's piece is $\frac{1}{3}$ of the short ribbon, and Leo's piece is $\frac{1}{3}$ of the long ribbon. $\frac{1}{3}$ tells how much of its own whole is taken, so it depends on the whole. $\frac{1}{3}$ of a long ribbon is longer than $\frac{1}{3}$ of a short one, so Leo's piece is longer.

What counts as right: Counts as right if it makes these points: (1) the two wholes are not the same size — one ribbon is longer; (2) $\frac{1}{3}$ means $\frac{1}{3}$ of its own whole, so the same fraction of a bigger whole is more; (3) so Leo's piece is longer, and the pieces are not the same length. Only "both are $\frac{1}{3}$, so they are different" or a guess at which is longer, with no word about the wholes, does not count.