

# Fractions & Percents

In this tool, you can model fractions and mixed numbers using strips and pie models. You can also model addition and subtraction of fractions.

## Compare & Order Fractions Mode



1. **Textbox** Add comments to the activity area.
2. **Textbox with Arrow** Add comments to the activity area, using the arrow to focus attention on a particular area.
3. **Help** Launch a help file PDF for the tool.
4. **Reset All** Reset all current work in the activity area for the tool back to the default settings.
5. **Mode Drop-down** Shows all the available modes of the Fractions and Percents tool. Selecting a mode will open the tool in that mode and save any current work in the mode you were previously working in. There are four modes in the Fractions and Percents tool: Compare & Order Fractions, Compare Mixed Numbers, Add & Subtract Fractions, and Proportions & Percents.
6. **Activity Area** You can model up to 3 proper fractions in the activity area using fraction strips.

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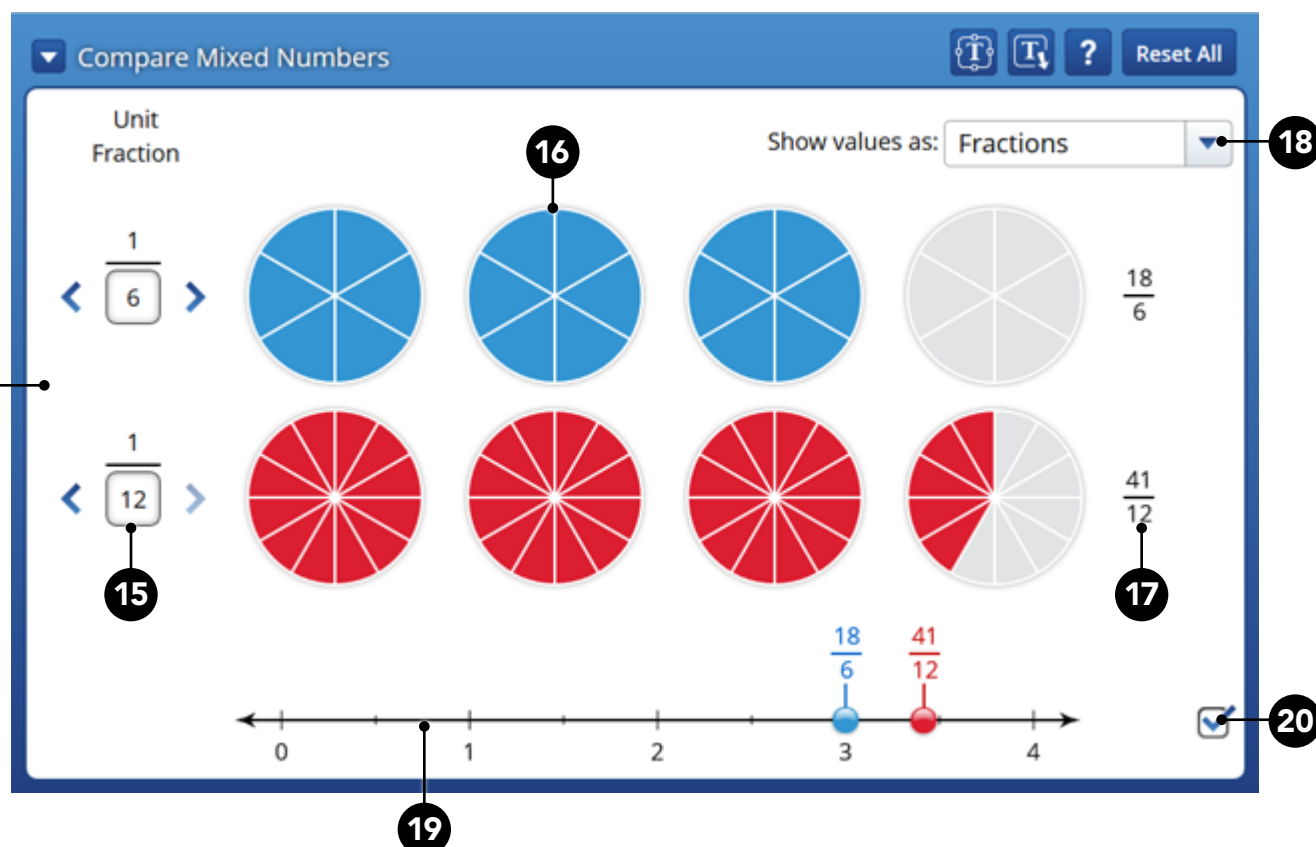
## Fractions & Percents

- 7. Unit Fraction(s)** You can split each fraction strip into up to 12 equal parts. Each equal part of a fraction strip represents the value of the unit fraction. Any part of the fraction strip that is currently filled will be adjusted when you change the number of equal parts.
- 8. Fraction Strip(s)** Each fraction strip represents one whole. The fraction strip may be split into a number of equal parts. You can show up to three fraction strips at the same time in the activity area. If you select one of the pieces on a particular fraction strip, the strip will be shaded up to that piece in a given color. To remove the shading from a fraction strip, press the leftmost piece of the strip twice. Each strip has its own color, green, blue, or red, to distinguish it from the others. The bottom two fraction strips are always available.
- 9. Strip Value Display Area(s)** Shows a value to the right of each fraction strip. The value that appears will depend upon which option you have chosen from the fraction strip options drop-down.
- 10. Fraction Strip Options Drop-down** Using the drop-down, you can choose which type of value will appear to right of each fraction strip. You choose the representation of the value of the fraction strips to appear as fractions, part-to-whole ratios, part-to-part ratios, percents, or hide the value.
- 11. Show Fraction Strip Checkbox** Allows you to show or hide the top fraction strip. If you hide the fraction strip, any changes you have made to the strip will be saved unless you select the reset all button.
- 12. Number Line Display** When the number line is displayed, you can see the values of the active fraction strips represented on a number line from 0 to 1. A colored point matching the color of each of the active fraction strips will appear on the number line in the exact position that value represents. As you update the value of each fraction strip, the value on the number line will update as well.
- 13. Number Line Checkbox** Allows you to show or hide the number line display. If you hide the number line, any changes you have made will be saved unless you select the reset all button.

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# Fractions & Percents

## Compare Mixed Numbers Mode



- 14. Activity Area** You can model up to 2 different mixed numbers using circles. You can add up to four circles to model a number.
- 15. Unit Fraction(s)** For each mixed number, you can split each of the circles representing your number into up to 12 equal parts. You can change the number of parts by using the arrows next to the input box. Any part of the shape(s) that are currently filled will be adjusted when you change the number of equal parts.
- 16. Fraction Shape(s)** Each circle represents one whole. The circle may be split into a number of equal parts, determined by the value selected in the equal parts box. You can show up to two sets of shapes at the same time in the activity area. If you select one of the pieces on a particular shape, the shape will be shaded counter-clockwise from the top middle of the shape to the part you have selected. Once you fill all of the pieces in a shape, another one will appear to the right until four shapes appear for that value. To remove the shading from shapes, press the piece to the left of the top middle twice. Each set of shapes has its own color, blue or red, to distinguish each set from the other.
- 17. Fraction Value Display Area(s)** Shows a value to the right of each set of circle(s). The value that appears will depend upon which option you have chosen from the fraction shape options drop-down.

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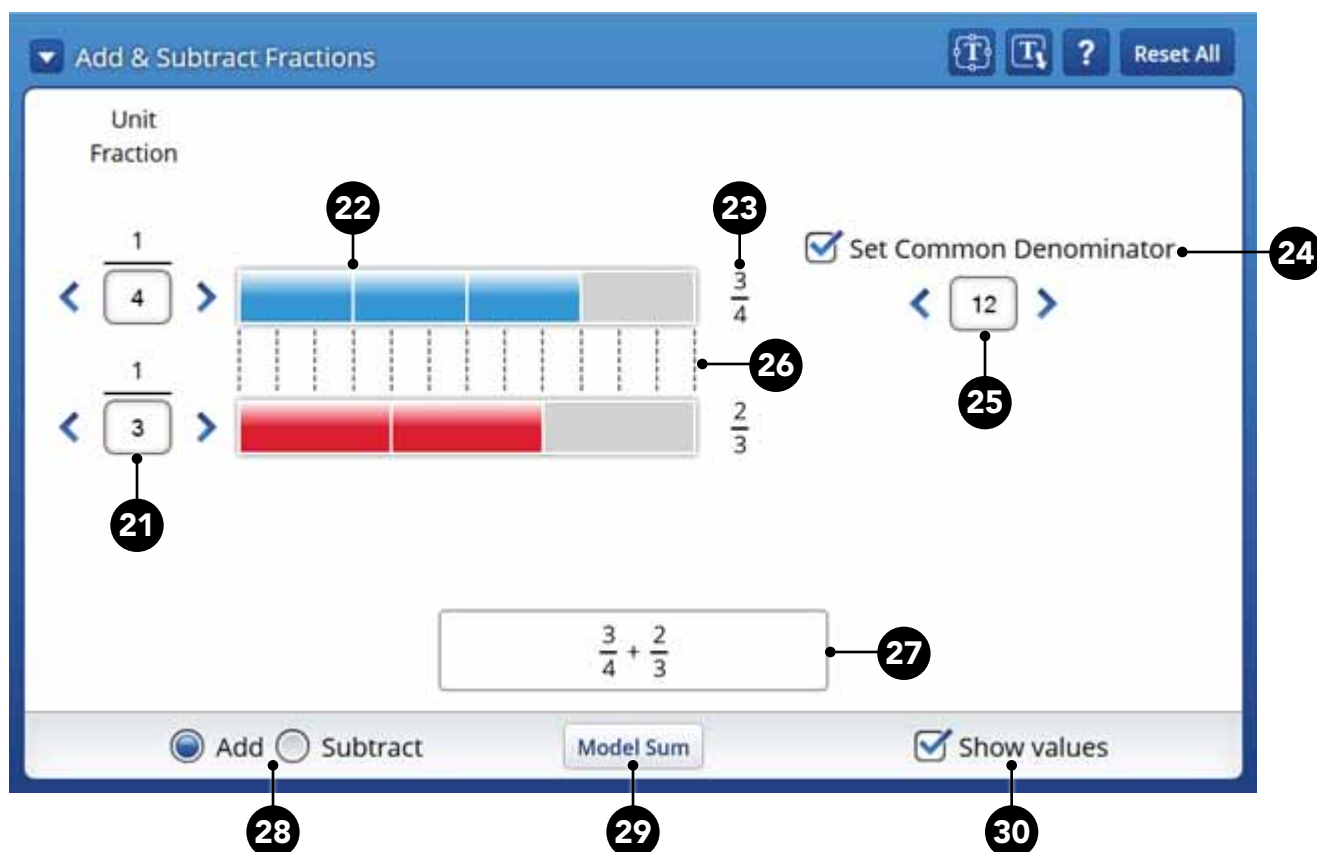
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- 18. Fraction Shape Options Drop-down Menu** Using the drop-down menu, you can choose to show the values of each set of shapes as a fraction, mixed number, or hide the value.
- 19. Number Line Display** When the number line is displayed, you can see the values of each set of fraction shapes represented on a number line from 0 to 4. A colored point matching the color of each set of fraction shapes will appear on the number line in the exact position that value represents. As you update the value of each set of fraction shapes, the value on the number line will update as well.
- 20. Number Line Checkbox** Allows you to show or hide the number line display. If you hide the number line, any changes you have made will be saved unless you select the reset all button.

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# Fractions & Percents

## Add & Subtract Fractions Mode – Part 1



- 21. Unit Fraction(s)** You can split each fraction strip into up to 12 equal parts. Each equal part of a fraction strip represents the value of the unit fraction. Any part of the fraction strip that is currently filled will be adjusted when you change the number of equal parts.
- 22. Fraction Strip(s)** Where you can model the two fractions to be added or subtracted. Each fraction strip represents one whole. The fraction strip may be split into a number of equal parts. If you select one of the pieces on a particular fraction strip, the strip will be shaded up to that piece in a given color. To remove the shading from a fraction strip, press the leftmost piece of the strip twice. The top fraction strip is always blue, and the bottom strip is always red.
- 23. Strip Value Display Area(s)** Shows the fractional value of the shaded portions on each of the fraction strips.
- 24. Set Common Denominator Checkbox** Allows you to set a common denominator to help add or subtract fractional expressions with unlike denominators. When selected, an input box is shown where you can select the common denominator for the two fractions. The checkbox is disabled when the two fractions have like denominators.
- 25. Set Denominator Input Area** Where you can change the value of the common denominator for the two fractions you have modeled. You change the value of the common denominator from 1 to 24 using the arrows.

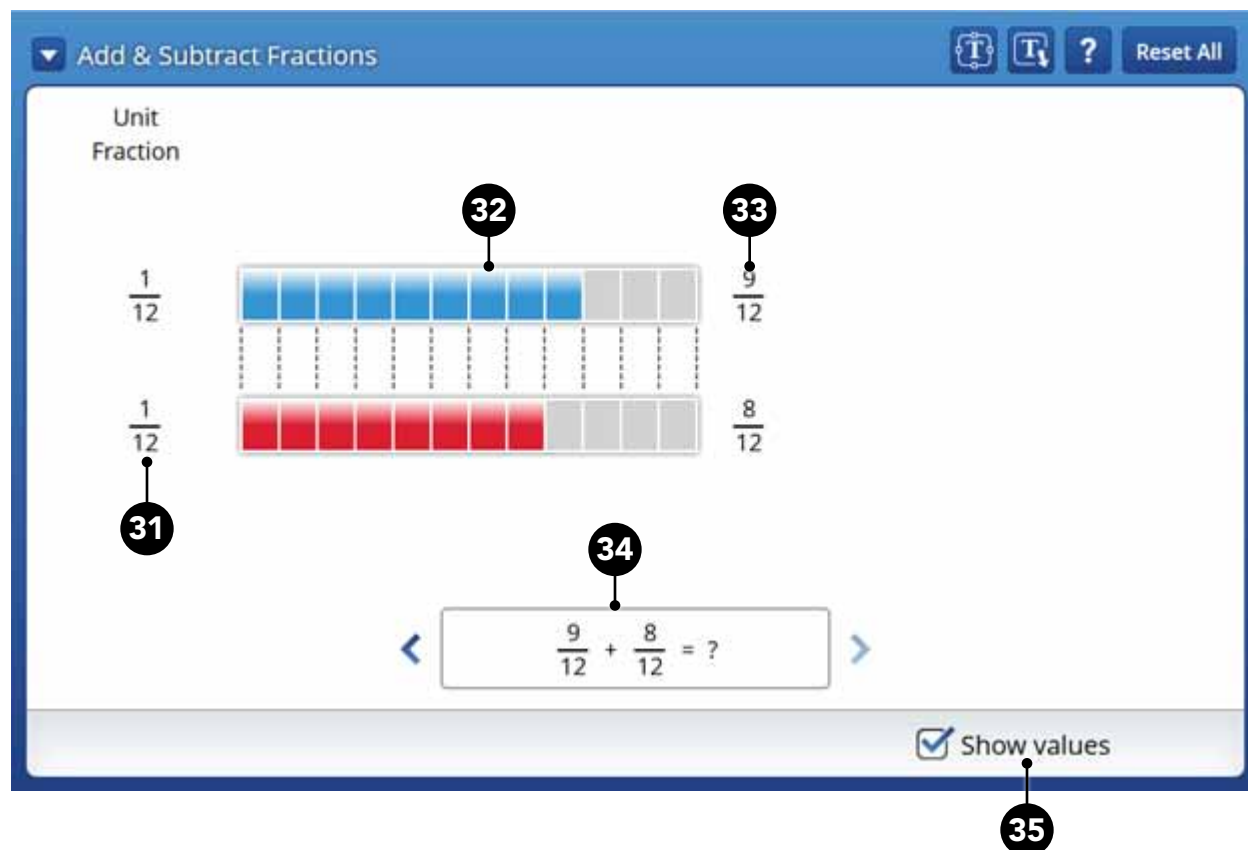
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- 26. Common Denominator Lines** When the show common denominator checkbox is selected, the common denominator lines will appear between the two fraction strips. The number of lines depends on the common denominator you chose. The common denominator lines will show an alignment of how the fraction strips would be split with the common denominator, to help determine if the common denominator you chose is correct.
- 27. Expression Display Area** Shows an expression of the fractions as a sum or difference. The top strip is always the first value in the expression.
- 28. Add and Subtract Radio Buttons** Using the radio buttons, you can choose to model a sum or difference of the two values represented by the fraction strips.
- 29. Model Sum/Difference Button** Allows you to take the fractions you have modeled on the current screen and sends you to the final screen to create the final sum or difference. The text on the button will update to match whether you have chosen the add or subtract radio buttons. You must choose a valid common denominator for the two fractions, and the sum or difference of the two fractions must be greater than zero or you will receive an error message.
- 30. Show Values Checkbox** Allows you to see both the values on the fraction strips and the value in the expression display area.

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# Fractions & Percents

## Add & Subtract Fractions - Part 2

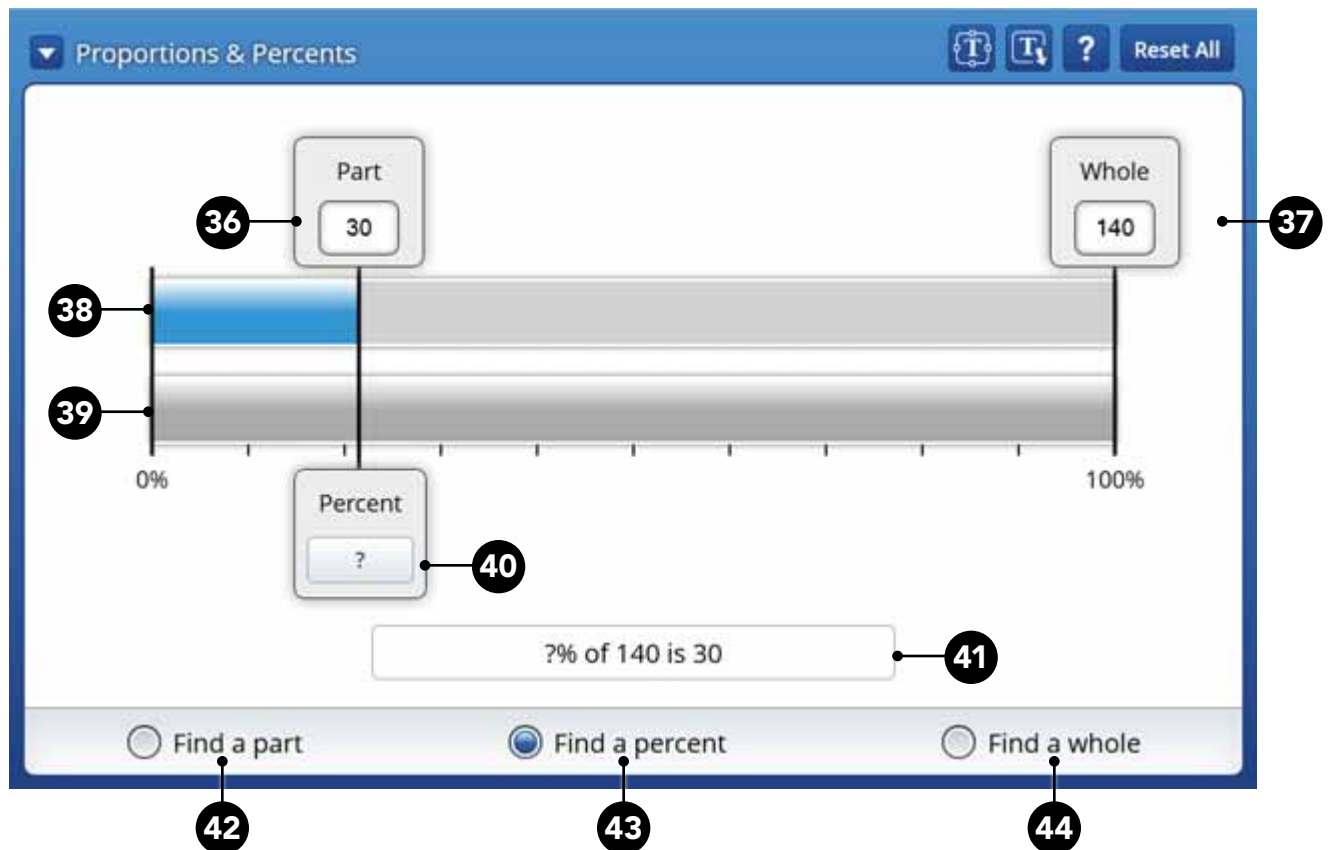


- 31. Unit Fraction(s)** Shows the value of each fraction piece on the fraction strips.
- 32. Fraction Strip(s)** When you press the model sum button or model difference button, the expressions are modeled with the common denominator on each of the strips. To complete modeling the sum of the two fractions, you must drag the red pieces from the bottom strip up to the top strip. The pieces will add to the right of the blue pieces. If the sum is greater than one, another strip will be added to the right of the top strip. To complete the modeling of the difference of the two fractions, drag the red pieces from the bottom strip up to the top strip. The pieces will cover the pieces on the top strip from left to right.
- 33. Strip Value Display Area(s)** Shows the fractional value of the shaded portions on each of the fraction strips. As you drag pieces from the bottom strip to the top strip, the value of each of the fraction strips will update.
- 34. Equation Display Area** Shows an equation of the two expressions. Using the arrows, you can see the original expression, the original expression expressed with a common denominator, and the final value of the sum or difference of the fractions. To see the final value, you must drag all of the pieces from the bottom strip to the top strip.
- 35. Show Values Checkbox** Allows you to see both the values on the fraction strips and the final value of the sum or difference in the equation display area.

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# Fractions & Percents

## Proportions & Percents Mode



**36. Part Input Area** Where you can enter or find the part value.

**37. Whole Input Area** Where you can enter or find the whole value.

**38. Part Value Strip** Shows the relative value of the part to the percent strip in blue.

**39. Percent Value Strip** Helps provide relative view of the value of the part compared to a percent.

**40. Percent Input Area** Where you can enter or find the percent value.

**41. Expression Display Area** Shows the current values of the percent, part, and whole in an expression. The ? will appear in the part of the expression that is unknown. When you show the value of the unknown part, the value is shown in the expression display as well.

**42. Find a Part Radio Button** When the find a part radio button is selected, you can choose the value of the whole, and move the percent point to choose the percent of your expression. The part input area box will contain a ? noting the value you need to find. If you select the ?, you will see a checkbox option to view the value of the part.

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## Fractions & Percents

- 43. Find a Percent Radio Button** When the find a percent radio button is selected, you can choose the value of the whole, and the value of the part. The percent input area box will contain a ? noting the value you need to find. If you select the ?, you will see a checkbox option to view the value of the percent. The value of the part can exceed the value of the whole.
- 44. Find a Whole Radio Button** When the find a whole radio button is selected, you can choose the value of the part, and move the percent point to choose the percent of your expression. The whole input area box will contain a ? noting the value you need to find. If you select the ?, you will see a checkbox option to view the value of the whole.