

**Another Look!**Estimate  $\frac{10}{12} - \frac{4}{9}$ .

You can use halfway numbers to help decide if each fraction is closest to 0, to  $\frac{1}{2}$ , or to 1.



# Additional Practice 7-1

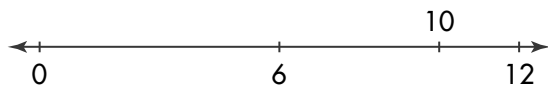
## Estimate Sums and Differences of Fractions

**Step 1**Is  $\frac{10}{12}$  closest to 0,  $\frac{1}{2}$ , or 1?

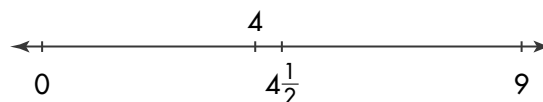
Find the halfway number between 0 and the denominator.

6 is halfway between 0 and 12.

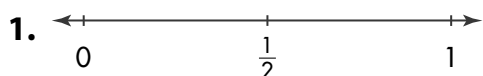
Decide if the numerator is about the same as the halfway number, closer to 0, or closer to 12.



10 is closest to 12.

So,  $\frac{10}{12}$  is closest to 1.**Step 2**Is  $\frac{4}{9}$  closest to 0,  $\frac{1}{2}$ , or 1?If the numerator is closest to the halfway number, the fraction is closest to  $\frac{1}{2}$ . $4\frac{1}{2}$  is halfway between 0 and 9.4 is closest to  $4\frac{1}{2}$ .So,  $\frac{4}{9}$  is closest to  $\frac{1}{2}$ . $\frac{10}{12} - \frac{4}{9}$  is about  $1 - \frac{1}{2} = \frac{1}{2}$ .

**Leveled Practice** In 1–7, estimate each sum or difference by replacing each fraction with 0,  $\frac{1}{2}$ , or 1.



$$\frac{4}{18} + \frac{3}{7}$$

 $\frac{4}{18}$  Closest to: 0 $\frac{3}{7}$  Closest to:  $\frac{1}{2}$ Estimate: 0 +  $\frac{1}{2}$  =  $\frac{1}{2}$ 

2.  $\frac{8}{15} + \frac{2}{5}$  1

3.  $\frac{17}{21} - \frac{2}{10}$  1

4.  $\frac{8}{10} + \frac{4}{9}$   $1\frac{1}{2}$

5.  $\frac{12}{15} - \frac{3}{7}$   $\frac{1}{2}$

6.  $\frac{15}{20} + \frac{7}{8}$  2

7.  $\frac{8}{14} - \frac{4}{10}$  0



8. Sam and Lou need a total of 1 foot of wire for a science project. Sam's wire measured  $\frac{8}{12}$ -foot long. Lou's wire measured  $\frac{7}{8}$ -foot long. Do they have enough wire for the science project? Explain your reasoning.

**Yes. Sample answer:**  $\frac{8}{12}$  is closest to  $\frac{1}{2}$ .  $\frac{7}{8}$  is closest to 1.  $\frac{1}{2} + 1 = 1\frac{1}{2}$

9. **Construct Arguments** Katya measured the growth of a plant seedling. The seedling grew  $\frac{1}{3}$  inch by the end of the first week and another  $\frac{5}{6}$  inch by the end of the second week. About how much did the seedling grow in the first 2 weeks? Explain how you made your estimate.

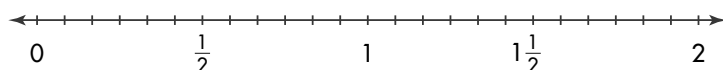
**Sample answer:** About  $1\frac{1}{2}$  inches;  $\frac{1}{3}$  is closest to  $\frac{1}{2}$ .  $\frac{5}{6}$  is closest to 1. Add  $\frac{1}{2} + 1 = 1\frac{1}{2}$ .

10. A scientist measured the amount of rain that fell in a town during one month. How much more rainfall was there in Week 4 than in Week 1?

**1.47 millimeters**

March Rainfall	
Week	Millimeters
1	2.6
2	3.32
3	4.06
4	4.07

11. **Higher Order Thinking** Jack is growing Red Wiggler worms to help make compost. He measured the lengths of two young worms. The 10-day old worm is  $\frac{10}{12}$  inch long. The 20-day old worm is  $1\frac{4}{6}$  inches long. About how much longer is the 20-day old worm than the 10-day old worm? Explain how you found your estimate.



**Sample answer:** About  $\frac{1}{2}$  inch;  $1\frac{4}{6}$  is closest to  $1\frac{1}{2}$ .  $\frac{10}{12}$  is closest to 1. Subtract  $1\frac{1}{2} - 1 = \frac{1}{2}$ .

You can use the number line.



### Assessment Practice

12. Julia has to mow two yards. She will need  $\frac{13}{16}$  gallon of gas to mow the first yard and  $\frac{2}{5}$  gallon to mow the second yard. She has  $1\frac{1}{2}$  gallons of gas in her can. Does she have enough to mow both yards? Explain.

**Yes. The first yard takes less than 1 gallon. The second takes less than  $\frac{1}{2}$  gallon. So the two yards will take less than  $1\frac{1}{2}$  gallons altogether.**