

G4-M5-Lesson 29

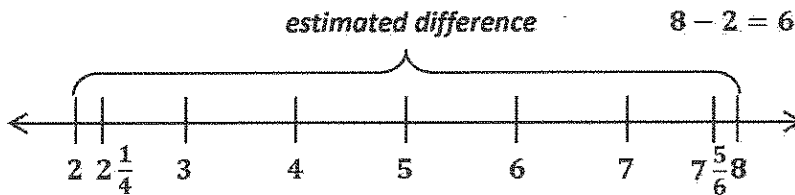
1. Estimate each sum or difference to the nearest half or whole number by rounding. Explain your estimate using words or a number line.

a. $4\frac{1}{9} + 2\frac{4}{5} \approx \underline{7}$

$4\frac{1}{9}$ is close to 4, and $2\frac{4}{5}$ is close to 3. $4 + 3 = 7$

$4\frac{1}{9}$ is 1 ninth more than 4. $2\frac{4}{5}$ is 1 fifth less than 3.

b. $7\frac{5}{6} - 2\frac{1}{4} \approx \underline{6}$



I draw a number line and plot the mixed numbers. It's easy to see on my number line that $7\frac{5}{6}$ is close to 8 and $2\frac{1}{4}$ is close to 2.

My number line makes it easy to see that the estimated difference is larger than the actual difference because I rounded one number up and the other number down.

c. $5\frac{4}{10} + 3\frac{1}{8} \approx \underline{8\frac{1}{2}}$

$5\frac{4}{10}$ is close to $5\frac{1}{2}$, and $3\frac{1}{8}$ is close to 3. $5\frac{1}{2} + 3 = 8\frac{1}{2}$

d. $\frac{15}{7} + \frac{20}{3} \approx \underline{9}$

$\frac{15}{7} = 2\frac{1}{7}$

$\frac{20}{3} = 6\frac{2}{3}$

$2 + 7 = 9$

$2\frac{1}{7} \approx 2$

$6\frac{2}{3} \approx 7$

I renamed each fraction greater than 1 as a mixed number. Then, I rounded to the nearest whole number and added the rounded numbers.

2. Ben's estimate for $8\frac{6}{10} - 3\frac{1}{4}$ was 6. Michelle's estimate was $5\frac{1}{2}$. Whose estimate do you think is closer to the actual difference? Explain.

I think Michelle's estimate is closer to the actual difference. Ben rounded both numbers to the nearest whole number and then subtracted: $9 - 3 = 6$. Michelle rounded $8\frac{6}{10}$ to the nearest half, $8\frac{1}{2}$, and she rounded $3\frac{1}{4}$ to the nearest whole number. Then, she subtracted: $8\frac{1}{2} - 3 = 5\frac{1}{2}$. Since $8\frac{6}{10}$ is closer to $8\frac{1}{2}$ than 9, rounding it to the nearest half will give a closer estimate than rounding both numbers to the nearest whole number.

I can also draw number lines to show the actual difference, Ben's estimated difference, and Michelle's estimated difference. Because Ben rounded the total up and the part down, his estimated difference will be greater than the actual difference.

3. Use benchmark numbers or mental math to estimate the sum.

$$14\frac{3}{8} + 7\frac{7}{12} \approx 22$$

$$14\frac{1}{2} + 7\frac{1}{2} = 21 + 1 = 22$$

$\frac{3}{8}$ is 1 eighth less than $\frac{1}{2}$, and $\frac{7}{12}$ is 1 twelfth greater than $\frac{1}{2}$. I add the ones, and then I add the halves to get 22.