Activity 1.4.3: Problem Solving Involving Rational Algebraic Expressions ✓

Total points = 33

1. Let x = amount of time in hours to complete the job when working together ✓
   $\frac{1}{20}+\frac{1}{5}=\frac{1}{x}$ ✓
   $20x\left[\frac{1}{20}+\frac{1}{5}=\frac{1}{x}\right]$ ✓
   $x+4x=20$ ✓
   $\frac{5x}{5}=\frac{20}{5}$ ✓
   $x=4$ ✓
2. Let x = number of hours it will take to fill the pool ✓
   $\frac{1}{3}-\frac{1}{12}=\frac{1}{x}$ ✓
   $12x\left[\frac{1}{3}-\frac{1}{12}=\frac{1}{x}\right]$ ✓
   $4x-x=12$ ✓
   $\frac{3x}{3}=\frac{12}{3}$ ✓
   $x=4$ ✓
3. Let x = amount of time in hours to complete the job when working together ✓
   $\frac{1}{6}+\frac{1}{7}=\frac{1}{x}$ ✓
   $42x\left[\frac{1}{6}+\frac{1}{7}=\frac{1}{x}\right]$ ✓
   $7x+6x=42$ ✓
   $\frac{13x}{13}=\frac{42}{13}$ ✓
   $x=3\frac{3}{13}$ ✓
4. Let x = amount of time in hours to complete the job when working together ✓
   $\frac{1}{4}+\frac{1}{6}=\frac{1}{x}$ ✓
   $12x\left[\frac{1}{4}+\frac{1}{6}=\frac{1}{x}\right]$ ✓
   $3x+2x=12$ ✓
   $\frac{5x}{5}=\frac{12}{5}$ ✓
   $x=2\frac{2}{5}$ ✓
5. Let x = the number of additional gallons of gasoline needed to travel 200 miles. ✓
   $\frac{400}{20}=\frac{200}{x+7}$ ✓
   $(x+7)\left[20=\frac{200}{x+7}\right]$ ✓
   $20(x+7)=200$ ✓
   $20x+140=200$ ✓
   $20x+140-140=200-140$ ✓
   $\frac{20x}{20}=\frac{60}{20}$ ✓
   $x=3$ ✓

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