

# Labor Costs Quiz

Name KEY

1. One employee is using a nail gun and can do a job in 2 hours. Another employee is using a hammer and can do the job in 5 hours. If they are both working on the job, how long will it take?

	Time	Amount of work done in 1 hr
Nail Gun	2 hr	$\frac{1}{2}$
Hammer	5 hr	$\frac{1}{5}$
Both	X hr	$\frac{1}{x}$

$$10x \left[ \frac{1}{2} + \frac{1}{5} = \frac{1}{x} \right]$$

$$LCD = 10x$$

$$5x + 2x = 10$$

$$7x = 10$$

$$x = \frac{10}{7}$$

$$x \approx 1.43 \text{ hours}$$

$$.43 \text{ hr} \times \frac{60 \text{ min}}{1 \text{ hr}} = 26 \text{ min}$$

$$\approx 1 \text{ hour } 26 \text{ minutes}$$

2. One employee is using a nail gun and can do a job in 3 hours. Another employee is using a hammer and can do the job in 4 hours and 15 minutes. If they are both working on the job, how long will it take?

	Time	Amount of work done in 1 hr
Nail Gun	3 hr	$\frac{1}{3}$
Hammer	4.25 hr	$\frac{1}{4.25}$
Both	X	$\frac{1}{x}$

$$12.75x \left[ \frac{1}{3} + \frac{1}{4.25} = \frac{1}{x} \right]$$

$$LCD = 12.75x$$

$$4.25x + 3x = 12.75$$

$$\frac{7.25x}{7.25} = \frac{12.75}{7.25}$$

$$x = 1.76 \text{ hours}$$

$$.76 \text{ hr} \times \frac{60 \text{ min}}{1 \text{ hr}} = 46 \text{ min}$$

$$\approx 1 \text{ hr } 46 \text{ minutes}$$

3. A company hires builders, finishers, and painters to complete a project. A builder makes \$11 an hour, the finisher makes \$22 an hour, and the painter makes \$9.50 an hour. Write an equation using b for builder, f for finisher, and p for painter to represent the cost for labor. If a builder works 10 hours, the finisher works 5 hours on a job, and the painter works 1.5 hours, how much is the cost for labor?

$$11b + 22f + 9.5p = \text{Cost}$$

$$11(10) + 22(5) + (9.5)(1.5) = \text{Cost}$$

$$110 + 110 + 14.25 = \text{Cost}$$

$$\text{Cost} = \$234.25$$

4. One pump can fill a tank with oil in 4 hours. A second pump can fill the same tank in 7 hours. If both pumps are used at the same time, how long will they take to fill the tank?

	Time to fill tank	Amount of tank filled in 1 hour
Pump 1	4 hrs	$\frac{1}{4}$
Pump 2	7 hr	$\frac{1}{7}$
Both pumps	X hr	$\frac{1}{x}$

$$28x \left[ \frac{1}{4} + \frac{1}{7} = \frac{1}{x} \right]$$

$$LCD = 28x$$

$$7x + 4x = 28$$

$$11x = 28$$

$$x = 2.55 \text{ hrs}$$

$$.55 \text{ hr} \times \frac{60 \text{ min}}{1 \text{ hr}} = 33 \text{ min}$$

$$\approx 2 \text{ hr } 33 \text{ minutes}$$