

**Work Problems – Day 2**  
Unit 5: Real World Applications

**Solve each question. Round your answer to the nearest hundredth when needed.**

1. Luke can clean an attic in 14 hours. Ashley can clean the same attic in 10 hours. How long would it take them if they worked together?

*5.83 hours*

2. It takes Molly eight hours to oil the lanes in the bowling alley. Danielle can oil the same lanes in ten hours. Find out how long it would take them if they worked together.

*4.44 hours*

3. Working alone, Lee can mop a warehouse in ten hours. Sara can mop the same warehouse in nine hours. Find out how long it would take them if they worked together.

*4.74 hours*

4. Stephanie can mop a warehouse in 12 hours. Shawna can mop the same warehouse in 11 hours. If they worked together how long would it take them?

*5.74 hours*

5. It takes Ian ten hours to harvest a field. John can harvest the same field in 16 hours. Find out how long it would take them if they worked together.

*6.15 hours*

6. Working alone, it takes Amanda 13.6 hours to pick forty bushels of apples. Wesley can pick the same amount in 8.8 hours. How long would it take them if they worked together?

*5.34 hours*

7. Working alone, it takes Carlos ten hours to dig a 10 ft by 10 ft hole. Beth can dig the same hole in nine hours. How long would it take them if they worked together?

*4.74 hours*

8. It takes Jimmy 10.8 hours to harvest a field. Eugene can harvest the same field in 10.4 hours. Find out how long it would take them if they worked together.

*5.30 hours*

9. Aliyah can mop a warehouse in 10.2 hours. Nicole can mop the same warehouse in 9 hours. How long would it take them if they worked together?

*4.78 hours*

10. Kim can pick forty bushels of apples in 13.8 hours. Matt can pick the same amount in 14 hours. Find out how long it would take them if they worked together.

*6.95 hours*

11. Working alone, Nick can pick forty bushels of apples in 13 hours. One day his mom Pam helped him, and it only took 5.32 hours. Find out how long it would take Pam to do it alone.

*9.01 hours*

12. Working together, Cody and Tyler can paint a fence in 4.24 hours. Had Cody done it alone it would have taken eight hours. How long would it take Tyler to do it alone?

9.02 hours

13. Working alone, Darryl can pick forty bushels of apples in 13 hours. One day his friend Adam helped him, and it only took 6.24 hours. How long would it take Adam to do it alone?

12 hours

14. Molly can harvest a field in 11 hours. One day her niece Leah helped her, and it only took 6.35 hours. Find out how long it would take Leah to do it alone.

15.02 hours

15. Working alone, James can pick forty bushels of apples in 15 hours. One day his friend John helped him, and it only took 5.22 hours. How long would it take John to do it alone?

8.01 hours

16. Working together, Ashton and Noel can pick forty bushels of apples in 5.04 hours. Had he done it alone it would have taken Ashton 13.1 hours. Find out how long it would take Noel to do it alone.

8.19 hours

17. Working alone, Ming can pick forty bushels of apples in 9.4 hours. One day her friend Micaela helped her, and it only took 5.59 hours. How long would it take Micaela to do it alone?

13.79 hours

18. Working together, Alan and Evan can paint a fence in 4.5 hours. Had he done it alone it would have taken Alan 9.7 hours. How long would it take Evan to do it alone?

8.39 hours

19. Working together, Katie and Emily can clean an attic in 5.05 hours. Had she done it alone it would have taken Katie 9 hours. How long would it take Emily to do it alone?

11.51 hours

20. Julie can tar a roof in 15 hours. One day her friend Talen helped her, and it only took 6.35 hours. How long would it take Talen to do it alone?

11.01 hours

① Luke rate =  $\frac{1 \text{ attic}}{14 \text{ hours}}$

Ashley rate =  $\frac{1 \text{ attic}}{10 \text{ hours}}$

Together:

$$140 \cdot \left[ \frac{1}{14}t + \frac{1}{10}t = 1 \right] \cdot 140$$

$$10t + 14t = 140$$

$$\frac{24t}{24} = \frac{140}{24}$$

$$t = 5.8\bar{3} \text{ nearest hundredth } \boxed{5.83}$$

② Molly rate =  $\frac{1 \text{ oil}}{8 \text{ hrs}}$

Danielle rate =  $\frac{1 \text{ oil}}{10 \text{ hrs}}$

Together:

$$80 \cdot \left[ \frac{1}{8}t + \frac{1}{10}t = 1 \right] \cdot 80$$

$$10t + 8t = 80$$

$$\frac{18t}{18} = \frac{80}{18}$$

$$t = 4.4\bar{4} \text{ nearest hundredth } \boxed{4.44}$$

③ Lee rate =  $\frac{1 \text{ warehouse}}{10 \text{ hours}}$

Sara rate =  $\frac{1 \text{ warehouse}}{9 \text{ hours}}$

Together:

$$90 \cdot \left[ \frac{1}{10}t + \frac{1}{9}t = 1 \right] \cdot 90$$

$$9t + 10t = 90$$

$$\frac{19t}{19} = \frac{90}{19}$$

$$t = 4.7368421053 \text{ nearest hundredth } \boxed{4.74}$$

$$\textcircled{4} \text{ Stephanie rate} = \frac{1 \text{ warehouse}}{12 \text{ hours}}$$

$$\text{Shawna rate} = \frac{1 \text{ warehouse}}{11 \text{ hours}}$$

Together:

$$132 \cdot \left[ \frac{1}{12}t + \frac{1}{11}t = 1 \right] \cdot 132$$

$$11t + 12t = 132$$

$$\frac{23t}{23} = \frac{132}{23}$$

$$t = 5.7391304348 \text{ nearest hundredth } \boxed{5.74}$$

$$\textcircled{5} \text{ Ian rate} = \frac{1 \text{ harvest}}{10 \text{ hours}}$$

$$\text{John rate} = \frac{1 \text{ harvest}}{16 \text{ hours}}$$

Together:

$$160 \cdot \left[ \frac{1}{10}t + \frac{1}{16}t = 1 \right] \cdot 160$$

$$16t + 10t = 160$$

$$\frac{26t}{26} = \frac{160}{26}$$

$$t = 6.1538461538 \text{ nearest hundredth } \boxed{6.15}$$

$$\textcircled{6} \text{ Amanda rate} = \frac{1 \text{ pick}}{13.6 \text{ hrs}}$$

$$\text{Wesley rate} = \frac{1 \text{ pick}}{8.8 \text{ hrs}}$$

Together:

$$119.68 \left[ \frac{1}{13.6}t + \frac{1}{8.8}t = 1 \right] 119.68$$

$$8.8t + 13.6t = 119.68$$

$$\frac{22.4t}{22.4} = \frac{119.68}{22.4}$$

$$t = 5.3428571429 \text{ nearest hundredth } \boxed{5.34}$$

$$\textcircled{7} \text{ Carlos rate} = \frac{1 \text{ dig}}{10 \text{ hrs}}$$

$$\text{Beth rate} = \frac{1 \text{ dig}}{9 \text{ hrs}}$$

Together:

$$90 \cdot \left[ \frac{1}{10}t + \frac{1}{9}t = 1 \right] \cdot 90$$

$$9t + 10t = 90$$

$$\frac{19t}{19} = \frac{90}{19}$$

$$t = 4.7368421053 \text{ nearest hundredth } \boxed{4.74}$$

$$\textcircled{8} \text{ Jimmy rate} = \frac{1 \text{ field}}{10.8 \text{ hrs}}$$

$$\text{Eugene rate} = \frac{1 \text{ field}}{10.4 \text{ hrs}}$$

Together:

$$112.32 \left[ \frac{1}{10.8}t + \frac{1}{10.4}t = 1 \right] \cdot 112.32$$

$$10.4t + 10.8t = 112.32$$

$$\frac{21.2t}{21.2} = \frac{112.32}{21.2}$$

$$t = 5.2981132075 \text{ nearest hundredth } \boxed{5.30}$$

$$\textcircled{9} \text{ Aliyah rate} = \frac{1 \text{ warehouse}}{10.2 \text{ hours}}$$

$$\text{Nicole rate} = \frac{1 \text{ warehouse}}{9 \text{ hours}}$$

Together:

$$91.8 \left[ \frac{1}{10.2}t + \frac{1}{9}t = 1 \right] \cdot 91.8$$

$$9t + 10.2t = 91.8$$

$$\frac{19.2t}{19.2} = \frac{91.8}{19.2}$$

$$t = 4.78125 \text{ nearest hundredth } \boxed{4.78}$$

$$\textcircled{10} \text{ Kim rate} = \frac{1 \text{ pick}}{13.8 \text{ hours}}$$

$$\text{Matt rate} = \frac{1 \text{ pick}}{14 \text{ hours}}$$

Together:

$$193.2 \left[ \frac{1}{13.8} t + \frac{1}{14} t = 1 \right] 193.2$$

$$14t + 13.8t = 193.2$$

$$\frac{27.8t}{27.8} = \frac{193.2}{27.8}$$

$$t = 6.9496402878 \text{ nearest hundredth } \boxed{6.95}$$

$$\textcircled{11} \text{ Nick rate} = \frac{1 \text{ pick}}{13 \text{ hrs}}$$

$$\text{Pam rate} = \frac{1}{h}$$

Together in 5.32 hours

$$\frac{1}{13} t + \frac{1}{h} t = 1$$

$$\frac{1}{13} (5.32) + \frac{1}{h} (5.32) = 1$$

$$13h \left[ \frac{5.32}{13} + \frac{5.32}{h} = 1 \right] 13h$$

$$\begin{array}{r} 5.32h + 69.16 = 13h \\ -5.32h \quad \quad -5.32h \\ \hline \end{array}$$

$$\frac{69.16}{7.68} = \frac{7.68h}{7.68}$$

$$h = 9.005208333 \text{ nearest hundredth } \boxed{9.01}$$

$$\textcircled{12} \text{ Cody rate} = \frac{1 \text{ fence}}{8 \text{ hours}}$$

$$\text{Tyler rate} = \frac{1 \text{ fence}}{h \text{ hours}}$$

Together in 4.24 hours

$$\frac{1}{8}t + \frac{1}{h}t = 1$$

$$\frac{1}{8}(4.24) + \frac{1}{h}(4.24) = 1$$

$$8h \left[ \frac{4.24}{8} + \frac{4.24}{h} = 1 \right] 8h$$

$$4.24h + 33.92 = 8h$$

$$\begin{array}{r} 4.24h + 33.92 = 8h \\ -4.24h \phantom{+ 33.92} \\ \hline \end{array}$$

$$33.92 = 3.76h$$

$$\frac{33.92}{3.76} = \frac{3.76h}{3.76}$$

$$h = 9.021276596 \text{ nearest hundredth } \boxed{9.02}$$

$$\textcircled{13} \text{ Darryl rate} = \frac{1 \text{ pick}}{13 \text{ hours}}$$

$$\text{Adam rate} = \frac{1 \text{ pick}}{h \text{ hours}}$$

Together in 6.24 hours

$$\frac{1}{13}t + \frac{1}{h}t = 1$$

$$\frac{1}{13}(6.24) + \frac{1}{h}(6.24) = 1$$

$$13h \left[ \frac{6.24}{13} + \frac{6.24}{h} = 1 \right] 13h$$

$$6.24h + 81.12 = 13h$$

$$\begin{array}{r} 6.24h + 81.12 = 13h \\ -6.24h \phantom{+ 81.12} \\ \hline \end{array}$$

$$81.12 = 6.76h$$

$$\frac{81.12}{6.76} = \frac{6.76h}{6.76}$$

$$\boxed{h = 12}$$

$$(14) \text{ Molly rate} = \frac{1 \text{ field}}{11 \text{ hours}}$$

$$\text{Leah rate} = \frac{1 \text{ field}}{h \text{ hours}}$$

Together in 6.35 hours

$$\frac{1}{11}t + \frac{1}{h}t = 1$$

$$\frac{1}{11}(6.35) + \frac{1}{h}(6.35) = 1$$

$$11h \left[ \frac{6.35}{11} + \frac{6.35}{h} = 1 \right] 11h$$

$$\begin{array}{r} 6.35h + 69.85 = 11h \\ -6.35h \qquad \qquad -6.35h \\ \hline \end{array}$$

$$\begin{array}{r} 69.85 = 4.65h \\ \hline 4.65 \qquad \qquad 4.65 \end{array}$$

$$h = 15.02150538 \text{ nearest hundredth } \boxed{15.02}$$

$$(15) \text{ James rate} = \frac{1 \text{ pick}}{15 \text{ hours}}$$

$$\text{John rate} = \frac{1 \text{ pick}}{h \text{ hours}}$$

Together in 5.22 hours

$$\frac{1}{15}t + \frac{1}{h}t = 1$$

$$\frac{1}{15}(5.22) + \frac{1}{h}(5.22) = 1$$

$$15h \left[ \frac{5.22}{15} + \frac{5.22}{h} = 1 \right] 15h$$

$$\begin{array}{r} 5.22h + 78.3 = 15h \\ -5.22h \qquad \qquad -5.22h \\ \hline \end{array}$$

$$\begin{array}{r} 78.3 = 9.78h \\ \hline 9.78 \qquad \qquad 9.78 \end{array}$$

$$h = 8.006134969 \text{ nearest hundredth } \boxed{8.01}$$



$$\textcircled{16} \text{ Ashton rate} = \frac{1 \text{ pick}}{13.1 \text{ hours}}$$

$$\text{Noel rate} = \frac{1 \text{ pick}}{h \text{ hours}}$$

Together in 5.04 hours

$$\frac{1}{13.1} t + \frac{1}{h} t = 1$$

$$\frac{1}{13.1} (5.04) + \frac{1}{h} (5.04) = 1$$

$$13.1 h \left[ \frac{5.04}{13.1} + \frac{5.04}{h} = 1 \right] 13.1 h$$

$$\begin{array}{r} 5.04h + 66.024 = 13.1h \\ -5.04h \qquad \qquad -5.04h \hline \end{array}$$

$$\frac{66.024}{8.06} = \frac{8.06h}{8.06}$$

$$h = 8.1915632754 \text{ nearest hundredth } \boxed{8.19}$$

$$\textcircled{17} \text{ Ming rate} = \frac{1 \text{ pick}}{9.4 \text{ hours}}$$

$$\text{Micaela rate} = \frac{1 \text{ pick}}{h \text{ hours}}$$

Together in 5.59 hours

$$\frac{1}{9.4} t + \frac{1}{h} t = 1$$

$$\frac{1}{9.4} (5.59) + \frac{1}{h} (5.59) = 1$$

$$9.4h \left[ \frac{5.59}{9.4} + \frac{5.59}{h} = 1 \right] 9.4h$$

$$\begin{array}{r} 5.59h + 52.546 = 9.4h \\ -5.59h \qquad \qquad -5.59h \hline \end{array}$$

$$\frac{52.546}{3.81} = \frac{3.81h}{3.81}$$

$$h = 13.7916010499 \text{ nearest hundredth } \boxed{13.79}$$

$$\textcircled{18} \text{ Alan rate} = \frac{1 \text{ fence}}{9.7 \text{ hours}}$$

$$\text{Evan rate} = \frac{1 \text{ fence}}{h \text{ hours}}$$

Together in 4.5 hours

$$\frac{1}{9.7}t + \frac{1}{h}t = 1$$

$$\frac{1}{9.7}(4.5) + \frac{1}{h}(4.5) = 1$$

$$9.7h \left[ \frac{4.5}{9.7} + \frac{4.5}{h} = 1 \right] 9.7h$$

$$\begin{array}{r} 4.5h + 43.65 = 9.7h \\ -4.5h \qquad \qquad -4.5h \end{array}$$

$$\frac{43.65}{5.2} = \frac{5.2h}{5.2}$$

$$h = 8.3942307692 \text{ nearest hundredth } \boxed{8.39}$$

$$\textcircled{19} \text{ Katie rate} = \frac{1 \text{ attic}}{9 \text{ hours}}$$

$$\text{Emily rate} = \frac{1 \text{ attic}}{h \text{ hours}}$$

Together in 5.05 hours

$$\frac{1}{9}t + \frac{1}{h}t = 1$$

$$\frac{1}{9}(5.05) + \frac{1}{h}(5.05) = 1$$

$$9h \left[ \frac{5.05}{9} + \frac{5.05}{h} = 1 \right] 9h$$

$$\begin{array}{r} 5.05h + 45.45 = 9h \\ -5.05h \qquad \qquad -5.05h \end{array}$$

$$\frac{45.45}{3.95} = \frac{3.95h}{3.95}$$

$$h = 11.5063291139 \text{ nearest hundredth } \boxed{11.51}$$

$$\textcircled{20} \quad \text{Julie rate} = \frac{1 \text{ roof}}{15 \text{ hours}}$$

$$\text{Talen rate} = \frac{1 \text{ roof}}{h \text{ hours}}$$

Together in 6.35 hours

$$\frac{1}{15}t + \frac{1}{h}t = 1$$

$$\frac{1}{15}(6.35) + \frac{1}{h}(6.35) = 1$$

$$15h \left[ \frac{6.35}{15} + \frac{6.35}{h} = 1 \right] 15h$$

$$\begin{array}{r} 6.35h + 95.25 = 15h \\ -6.35h \qquad \qquad \qquad -6.35h \\ \hline \end{array}$$

$$\frac{95.25}{8.65} = \frac{8.65h}{8.65}$$

$$h = 11.0115606936 \text{ nearest hundredth } \boxed{11.01}$$

