

Work Problems – Day 3
Unit 5: Real World Applications

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

1. Working alone, it takes DeShawn eight hours to oil the lanes in a bowling alley. Rob can oil the same lanes in ten hours. If they worked together how long would it take them?

4.44 hours

2. Working alone, Emily can clean the attic in 9 hours. Brenda can clean the same attic in 16 hours. Find out how long it would take them if they worked together.

5.76 hours

3. Michael can harvest a field in 11 hours. Julie can harvest the same field in 9 hours. Find out how long it would take them if they worked together.

4.95 hours

4. Working alone, it takes Eugene 15 hours to pick bushels of apples. Stephanie can pick the same amount in 8 hours. If they worked together how long would it take them?

5.22 hours

5. Working alone, it takes Dan 15 hours to harvest a field. Eduardo can harvest the same field in 12 hours. If they worked together how long would it take them?

6.67 hours

6. Working alone, it takes Beth 13.2 hours to pick forty bushels of apples. Natalie can pick the same amount in 10.9 hours. Find out how long it would take them if they worked together.

5.97 hours

7. Working alone, it takes Stephanie 9.6 hours to pick forty bushels of apples. Adam can pick the same amount in 13.1 hours. If they worked together how long would it take them?

5.54 hours

8. Angela can pick forty bushels of apples in 10.6 hours. Willie can pick the same amount in 14.7 hours. Find out how long it would take them if they worked together.

6.16 hours

9. It takes Angel 9.3 hours to clean an attic. Elisa can clean the same attic in 13.2 hours. How long would it take them if they worked together?

5.46 hours

10. It takes Jaidee eight hours to paint a fence. Cody can paint the same fence in nine hours. Find out how long it would take them if they worked together.

4.24 hours

11. Alberto can pick forty bushels of apples in 13 hours. One day his friend Dan helped him, and it took only 6.96 hours. Find out how long it would take Dan to do it alone.

14.98 hours

12. Working together, Perry and Willie can weed a garden in 5.65 minutes. Had he done it alone it would have taken Willie 10 minutes. Find out how long it would take Perry to do it alone.

12.99 minutes

13. Working together, Ming and Wilbur can mop a warehouse in 4.74 hours. Had he done it alone it would have taken Wilbur nine hours. Find out how long it would take Ming to do it alone.

10.01 hours

14. Working together, Jill and Jack can clean an attic in 6.15 hours. Had he done it alone it would have taken Jack 10 hours. How long would it take Jill to do it alone?

15.97 hours

15. Working alone, Eugene can harvest a field in 14 hours. One day his friend Maria helped him, and it only took 7.24 hours. How long would it take Maria to do it alone?

14.99 hours

16. Working together, Pam and Darryl can sweep a porch in 4.62 minutes. Had he done it alone it would have taken Darryl nine minutes. Find out how long it would take Pam to do it alone.

9.49 minutes

17. Working alone, Adam can clean an attic in 9.4 hours. One day his friend Lea helped him, and it only took 4.98 hours. Find out how long it would take Lea to do it alone.

10.59 hours

18. Working alone, Angie can clean an attic in 10 hours. One day her friend Jessica helped her, and it only took 6.15 hours. Find out how long it would take Jessica to do it alone.

15.97 hours

19. Working together, Molly and Matt can sweep a porch in 5.47 minutes. Had he done it alone it would have taken Matt 13.5 minutes. Find out how long it would take Molly to do it alone.

9.20 minutes

20. Elisa can pick forty bushels of apples in 11.4 hours. One day her friend Scott helped her, and it only took 6.16 hours. How long would it take Scott to do it alone?

13.40 hours

$$\textcircled{1} \text{ DeShawn rate} = \frac{1 \text{ oil}}{8 \text{ hours}}$$

$$\text{Rob rate} = \frac{1 \text{ oil}}{10 \text{ hours}}$$

Together:

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

$$10t + 8t = 80$$

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

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

$$\textcircled{2} \text{ Emily rate} = \frac{1 \text{ lattice}}{9 \text{ hours}}$$

$$\text{Brenda rate} = \frac{1 \text{ lattice}}{16 \text{ hours}}$$

Together:

$$144 \left[\frac{1}{9}t + \frac{1}{16}t = 1 \right] 144$$

$$16t + 9t = 144$$

$$\frac{25t}{25} = \frac{144}{25}$$

$$t = \boxed{5.76}$$

$$\textcircled{3} \text{ Michael rate} = \frac{1 \text{ field}}{11 \text{ hours}}$$

$$\text{Julie rate} = \frac{1 \text{ field}}{9 \text{ hours}}$$

Together:

$$99 \left[\frac{1}{11}t + \frac{1}{9}t = 1 \right] 99$$

$$9t + 11t = 99$$

$$\frac{20t}{20} = \frac{99}{20}$$

$$t = \boxed{4.95}$$

$$\textcircled{4} \text{ Eugene rate} = \frac{1 \text{ pick}}{15 \text{ hours}}$$

$$\text{Stephanie rate} = \frac{1 \text{ pick}}{8 \text{ hours}}$$

Together:

$$120 \left[\frac{1}{15}t + \frac{1}{8}t = 1 \right] 120$$

$$8t + 15t = 120$$

$$\frac{23t}{23} = \frac{120}{23}$$

$$t = 5.2173913043 \text{ nearest hundredth } \boxed{5.22}$$

$$\textcircled{5} \text{ Dan rate} = \frac{1 \text{ field}}{15 \text{ hours}}$$

$$\text{Eduardo rate} = \frac{1 \text{ field}}{12 \text{ hours}}$$

Together:

$$180 \left[\frac{1}{15}t + \frac{1}{12}t = 1 \right] 180$$

$$12t + 15t = 180$$

$$\frac{27t}{27} = \frac{180}{27}$$

$$t = 6.66\bar{6} \text{ nearest hundredth } \boxed{6.67}$$

$$\textcircled{6} \text{ Beth rate} = \frac{1 \text{ pick}}{13.2 \text{ hours}}$$

$$\text{Natalie rate} = \frac{1 \text{ pick}}{10.9 \text{ hours}}$$

Together:

$$143.88 \left[\frac{1}{13.2}t + \frac{1}{10.9}t = 1 \right] 143.88$$

$$10.9t + 13.2t = 143.88$$

$$\frac{24.1t}{24.1} = \frac{143.88}{24.1}$$

$$t = 5.9701244813 \text{ nearest hundredth } \boxed{5.97}$$

$$\textcircled{7} \quad \text{Stephanie rate} = \frac{1 \text{ pick}}{9.6 \text{ hours}} \quad \text{Adam rate} = \frac{1 \text{ pick}}{13.1 \text{ hours}}$$

Together:

$$125.76 \left[\frac{1}{9.6} t + \frac{1}{13.1} t = 1 \right] 125.76$$

$$13.1t + 9.6t = 125.76$$

$$\frac{22.7t}{22.7} = \frac{125.76}{22.7}$$

$$t = 5.5400881057 \text{ nearest hundredth } \boxed{5.54}$$

$$\textcircled{8} \quad \text{Angela rate} = \frac{1 \text{ pick}}{10.6 \text{ hours}} \quad \text{Willie rate} = \frac{1 \text{ pick}}{14.7 \text{ hours}}$$

Together:

$$155.82 \left[\frac{1}{10.6} t + \frac{1}{14.7} t = 1 \right] 155.82$$

$$14.7t + 10.6t = 155.82$$

$$\frac{25.3t}{25.3} = \frac{155.82}{25.3}$$

$$t = 6.1588932806 \text{ nearest hundredth } \boxed{6.16}$$

$$\textcircled{9} \quad \text{Angel rate} = \frac{1 \text{ attic}}{9.3 \text{ hours}} \quad \text{Elisa rate} = \frac{1 \text{ attic}}{13.2 \text{ hours}}$$

Together:

$$122.76 \left[\frac{1}{9.3} t + \frac{1}{13.2} t = 1 \right] 122.76$$

$$13.2t + 9.3t = 122.76$$

$$\frac{22.5t}{22.5} = \frac{122.76}{22.5}$$

$$t = 5.456 \text{ nearest hundredth } \boxed{5.46}$$

⑩ Jaidee rate = $\frac{1 \text{ fence}}{8 \text{ hours}}$ Cody rate = $\frac{1 \text{ fence}}{9 \text{ hours}}$

Together:

$$72 \left[\frac{1}{8}t + \frac{1}{9}t = 1 \right] 72$$

$$9t + 8t = 72$$

$$\frac{17t}{17} = \frac{72}{17}$$

$$t = 4.2352941176 \text{ nearest hundredth } \boxed{4.24}$$

⑪ Alberto rate = $\frac{1 \text{ pick}}{13 \text{ hours}}$ Dan rate = $\frac{1 \text{ pick}}{h \text{ hours}}$

Together in 6.96 hours

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

$$\frac{1}{13}(6.96) + \frac{1}{h}(6.96) = 1$$

$$13h \left[\frac{6.96}{13} + \frac{6.96}{h} = 1 \right] 13h$$

$$6.96h + 90.48 = 13h$$

$$-6.96h$$

$$-6.96h$$

$$\frac{90.48}{6.04} = \frac{6.04h}{6.04}$$

$$h = 14.9801324503 \text{ nearest hundredth } \boxed{14.98}$$

$$(12) \text{ Perry rate} = \frac{1 \text{ garden}}{h \text{ minutes}}$$

$$\text{Willie rate} = \frac{1 \text{ garden}}{10 \text{ minutes}}$$

Together in 5.65 minutes

$$\frac{1}{h}t + \frac{1}{10}t = 1$$

$$\frac{1}{h}(5.65) + \frac{1}{10}(5.65) = 1$$

$$10h \left[\frac{5.65}{h} + \frac{5.65}{10} = 1 \right] 10h$$

$$\begin{array}{r} 56.5 + 5.65h = 10h \\ - 5.65h \quad - 5.65h \\ \hline \end{array}$$

$$\frac{56.5}{4.35} = \frac{4.35h}{4.35}$$

$$h = 12.9985057471 \text{ nearest hundredth } \boxed{12.99}$$

$$(13) \text{ Ming rate} = \frac{1 \text{ warehouse}}{h \text{ hours}}$$

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

Together in 4.74 hours

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

$$\frac{1}{h}(4.74) + \frac{1}{9}(4.74) = 1$$

$$9h \left[\frac{4.74}{h} + \frac{4.74}{9} = 1 \right] 9h$$

$$\begin{array}{r} 42.66 + 4.74h = 9h \\ - 4.74h \quad - 4.74h \\ \hline \end{array}$$

$$\frac{42.66}{4.26} = \frac{4.26h}{4.26}$$

$$h = 10.01408451 \text{ nearest hundredth } \boxed{10.01}$$

$$(14) \text{ Jill rate} = \frac{1 \text{ attic}}{h \text{ hours}}$$

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

Together in 6.15 hours

$$\frac{1}{h}t + \frac{1}{10}t = 1$$

$$\frac{1}{h}(6.15) + \frac{1}{10}(6.15) = 1$$

$$10h \left[\frac{6.15}{h} + \frac{6.15}{10} = 1 \right] 10h$$

$$\begin{array}{r} 61.5 + 6.15h = 10h \\ -6.15h \quad -6.15h \\ \hline \end{array}$$

$$\begin{array}{r} 61.5 = 3.85h \\ 3.85 \quad 3.85 \\ \hline \end{array}$$

$$h = 15.97402597 \text{ nearest hundredth } \boxed{15.97}$$

$$(15) \text{ Eugene rate} = \frac{1 \text{ field}}{14 \text{ hours}}$$

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

Together in 7.24 hours

$$\frac{1}{14}t + \frac{1}{h}t = 1$$

$$\frac{1}{14}(7.24) + \frac{1}{h}(7.24) = 1$$

$$14h \left[\frac{7.24}{14} + \frac{7.24}{h} = 1 \right] 14h$$

$$\begin{array}{r} 7.24h + 101.36 = 14h \\ -7.24h \quad -7.24h \\ \hline \end{array}$$

$$\begin{array}{r} 101.36 = 6.76h \\ 6.76 \quad 6.76 \\ \hline \end{array}$$

$$h = 14.99408284 \text{ nearest hundredth } \boxed{14.99}$$

$$(16) \text{ Pam rate} = \frac{1 \text{ porch}}{h \text{ minutes}}$$

$$\text{Darryl rate} = \frac{1 \text{ porch}}{9 \text{ minutes}}$$

Together in 4.62 minutes

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

$$\frac{1}{h}(4.62) + \frac{1}{9}(4.62) = 1$$

$$9h \left[\frac{4.62}{h} + \frac{4.62}{9} = 1 \right] 9h$$

$$41.58 + 4.62h = 9h$$

$$\begin{array}{r} 41.58 \\ - 4.62h \\ \hline 4.38 \end{array} = \frac{4.38h}{4.38}$$

$$h = 9.493150685 \text{ nearest hundredth } \boxed{9.49}$$

$$(17) \text{ Adam rate} = \frac{1 \text{ attic}}{9.4 \text{ hours}}$$

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

Together in 4.98 hours

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

$$\frac{1}{9.4}(4.98) + \frac{1}{h}(4.98) = 1$$

$$9.4h \left[\frac{4.98}{9.4} + \frac{4.98}{h} = 1 \right] 9.4h$$

$$4.98h + 46.812 = 9.4h$$

$$\begin{array}{r} 46.812 \\ - 4.98h \\ \hline 4.42 \end{array} = \frac{4.42h}{4.42}$$

$$h = 10.59095023 \text{ nearest hundredth } \boxed{10.59}$$

$$(18) \text{ Angie rate} = \frac{1 \text{ attic}}{10 \text{ hours}}$$

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

Together in 6.15 hours

$$\frac{1}{10}t + \frac{1}{h}t = 1$$

$$\frac{1}{10}(6.15) + \frac{1}{h}(6.15) = 1$$

$$10h \left[\frac{6.15}{10} + \frac{6.15}{h} = 1 \right] 10h$$

$$\begin{array}{r} 6.15h + 61.5 = 10h \\ -6.15h \qquad -6.15h \end{array}$$

$$\frac{61.5}{3.85} = \frac{3.85h}{3.85}$$

$$h = 15.97402597 \text{ nearest hundredth } \boxed{15.97}$$

$$(19) \text{ Molly rate} = \frac{1 \text{ porch}}{h \text{ minutes}}$$

$$\text{Matt rate} = \frac{1 \text{ porch}}{13.5 \text{ minutes}}$$

Together in 5.47 minutes

$$\frac{1}{h}t + \frac{1}{13.5}t = 1$$

$$\frac{1}{h}(5.47) + \frac{1}{13.5}(5.47) = 1$$

$$13.5h \left[\frac{5.47}{h} + \frac{5.47}{13.5} = 1 \right] 13.5h$$

$$\begin{array}{r} 73.845 + 5.47h = 13.5h \\ -5.47h \qquad -5.47h \end{array}$$

$$\frac{73.845}{8.03} = \frac{8.03h}{8.03}$$

$$h = 9.196139477 \text{ nearest hundredth } \boxed{9.20}$$

20) Elisa rate = $\frac{1 \text{ pick}}{11.4 \text{ hours}}$ Scott rate = $\frac{1 \text{ pick}}{h \text{ hours}}$

Together in 6.16 hours

$$\frac{1}{11.4} t + \frac{1}{h} t = 1$$

$$\frac{1}{11.4} (6.16) + \frac{1}{h} (6.16) = 1$$

$$11.4h \left[\frac{6.16}{11.4} + \frac{6.16}{h} = 1 \right] 11.4h$$

$$\begin{array}{r} 6.16h + 70.224 = 11.4h \\ -6.16h \qquad \qquad \qquad -6.16h \\ \hline \end{array}$$

$$\frac{70.224}{5.24} = \frac{5.24h}{5.24}$$

$h = 13.40152672$ nearest hundredth $\boxed{13.40}$

