Using Unit Rates

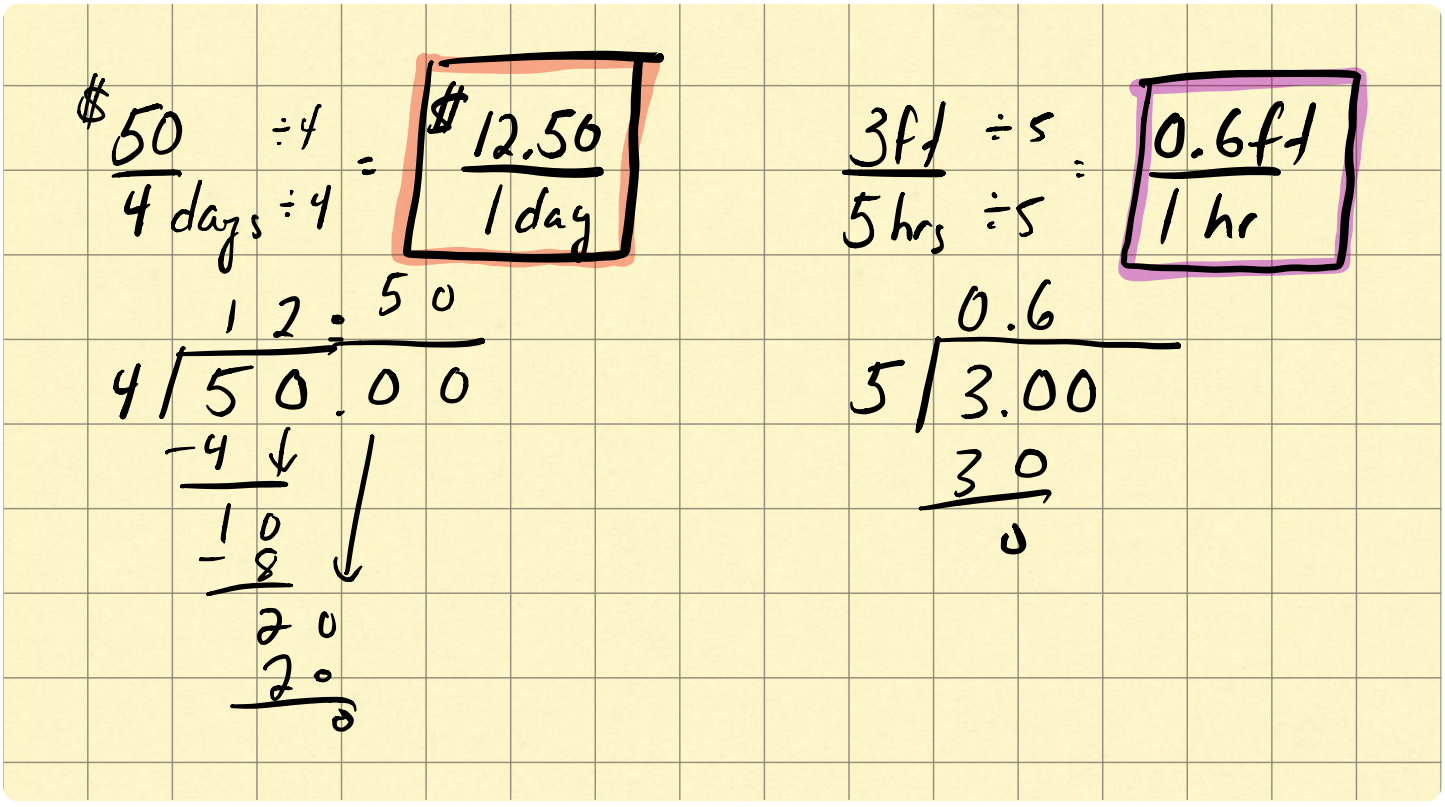
Express each rate as a unit rate.

1. $50 for 4 days work

$12.50 per day

2. 3 feet of snow in 5 hours

0.6ft per hr.



P

3. $22 for 5 dozen donuts

$4.40 per dozen

$\frac{\$22}{5d} \div 5 = \frac{\$4.40}{1 \text{ dozen donuts}}$

$$
\begin{array}{r}
04.4 \\
5\overline{)22.00} \\
-20 \\
\hline
20 \\
-20 \\
\hline
0
\end{array}
$$

4. $73.45 in 13 hours

$5.65 per hr.

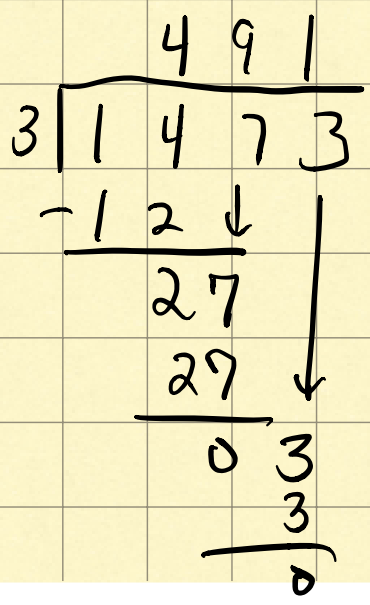
$\frac{\$73.45}{13hr} \div 13 = \frac{\$5.65}{1hr}$

$$
\begin{array}{r}
5.65 \\
13\overline{)73.45} \\
-65 \\
\hline
84 \\
-78 \\
\hline
65 \\
-65 \\
\hline
0
\end{array}
$$

5. 1,473 people entered the park in 3 hours

491 people per hr.

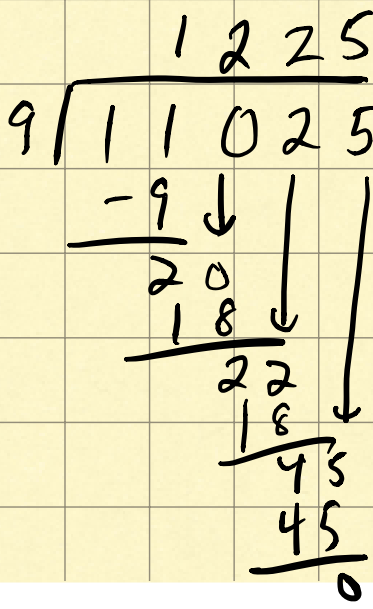
$\frac{1473 \text{ p}}{3 \text{ hr}} \div 3 = \frac{491 \text{ p}}{1 \text{ hr}}$



6. 11,025 tickets sold at 9 theaters

1225 tickets per theatre

$\frac{11025 \text{ tickets}}{9 \text{ theatres}} \div 9 = \frac{1225}{1}$



7. 100 meters in 12.2 seconds

≈ 8.19 meters per second

≈ 8.2

$\frac{100\text{ m}}{12.2\text{ sec}} \div 12.2 = \frac{8.2\text{ m}}{1\text{ sec}}$

$$
\begin{array}{r}
8.196 \\
12.2\overline{)1000.000} \\
\underline{976} \\
240 \\
\underline{122} \\
1180 \\
\underline{1098} \\
820
\end{array}
$$

8. 21.5 pounds in 12 weeks

1.79 pounds per wk

$\frac{21.5\text{ pounds}}{12\text{ weeks}} \div 12 = \frac{1.79\text{ pounds}}{1\text{ week}}$

$$
\begin{array}{r}
1.791 \\
12\overline{)21.500} \\
\underline{12} \\
95 \\
\underline{84} \\
110 \\
\underline{108} \\
20 \\
\underline{12}
\end{array}
$$

9. $\frac{40 \text{ flowers}}{5 \text{ vases}}$

8 flowers per vase

$\frac{40 \div 5}{5 \div 5} = \frac{8}{1}$

10. $\frac{6 \text{ cups}}{3 \text{ servings}}$

2 cups per serving

$\frac{6 \div 3}{3 \div 3} = \frac{2}{1}$

11. $\frac{\$120}{10 \text{ admission tickets}}$

$12 per ticket

$\frac{120 \div 10}{10 \div 10} = \frac{12}{1}$

12. $\frac{\$75}{5 \text{ video games}}$

\$15 per game

$\frac{75}{5} \div \frac{5}{5} = \frac{15}{1}$

13. $\frac{600 \text{ students}}{8 \text{ classes}}$

75 students per class

$$\begin{array}{r} 75 \\ 8\overline{)600} \\ -56 \\ \hline 40 \\ -40 \\ \hline 0 \end{array}$$

14. $\frac{32 \text{ pencils}}{4 \text{ boxes}}$

8 pencils per box

$\frac{32}{4} \div \frac{4}{4} = \frac{8}{1}$

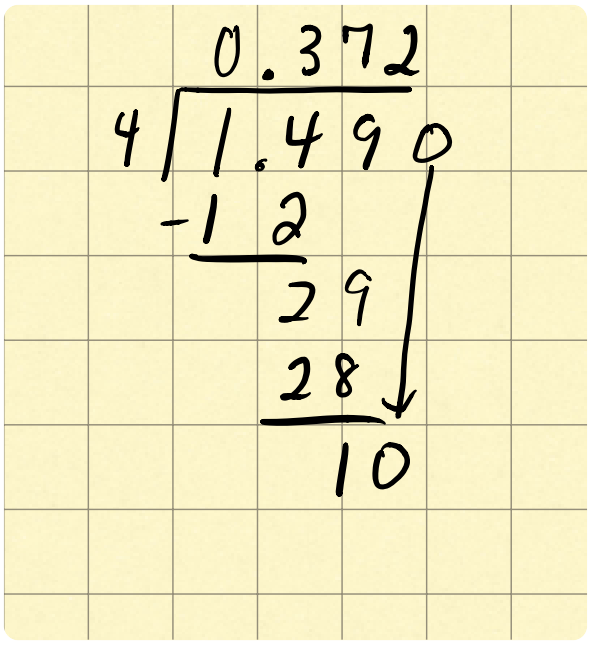
For numbers 15-19, decide which is the better buy. Show or explain your work.

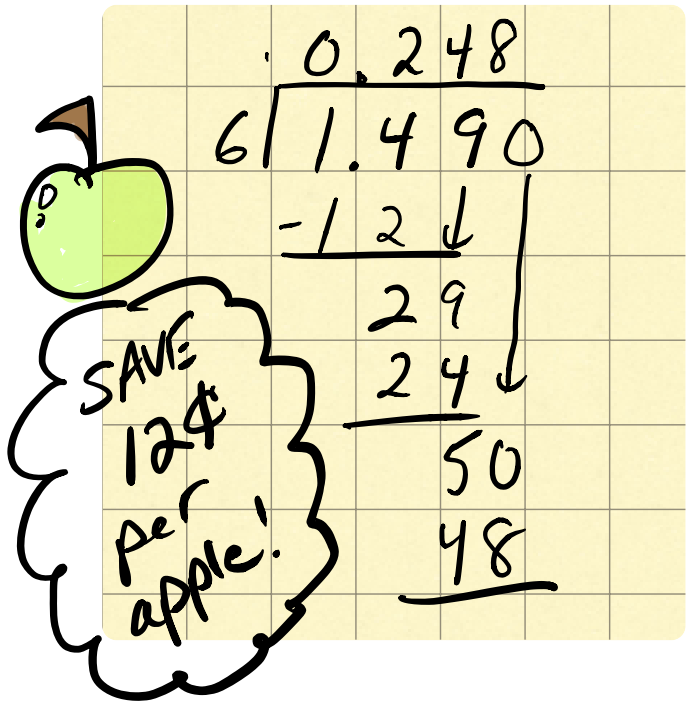
15. You can buy 4 Granny Smith apples at Ben's Mart for $0.95. SaveMost sells the same quality apples 6 for $1.49.

≈ $0.37 per apple

SAVEMOST is Better!

≈ $0.25 per apple





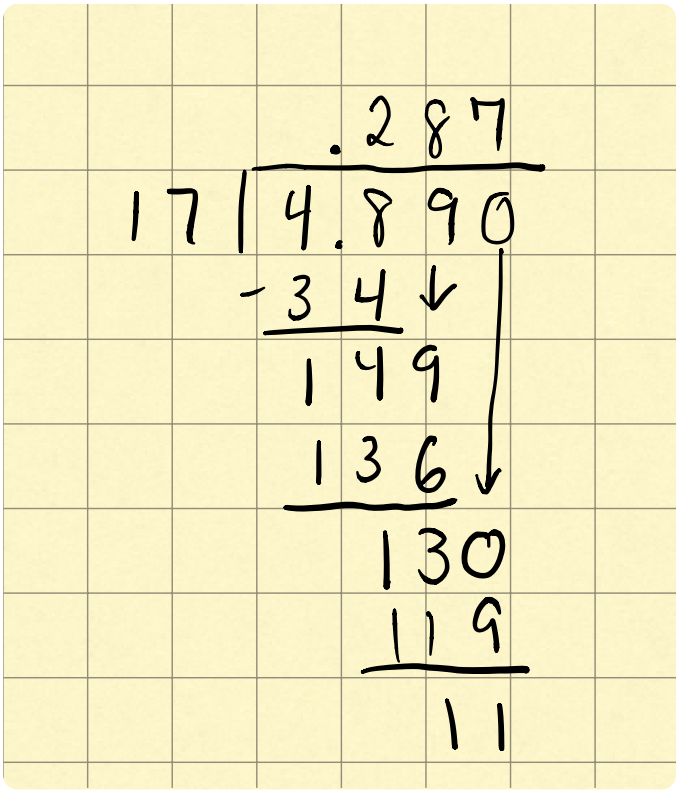
For numbers 15-19, decide which is the better buy. Show or explain your work.

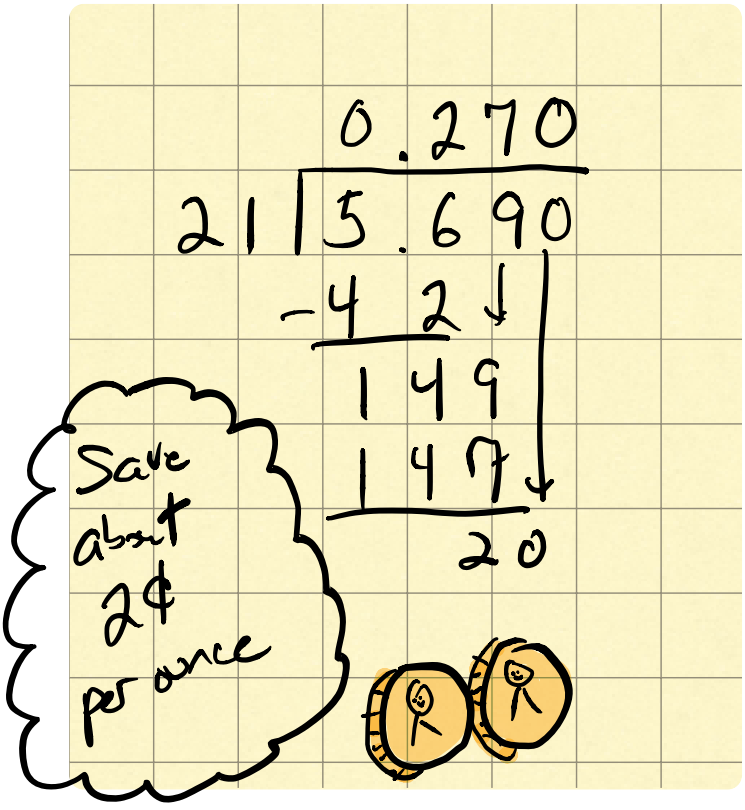
16. A 17-ounce box of cereal for $4.89 of a 21-ounce box for $5.69

21 ounce box is BETTER

≈ $0.29 per ounce

≈ $0.27 per ounce





For numbers 15-19, decide which is the better buy. Show or explain your work.

17. 6 cans of green beans for $1 of 10 cans for $1.95

≈ 17¢ per can

$0.1\overline{6}$ per can

≈ 20¢ per can

$0.195 per can

$$
\begin{array}{r}
.166 \\
6\overline{)1.000} \\
-6\downarrow \\
\hline
40 \\
-36\downarrow \\
\hline
40 \\
-36 \\
\hline
4
\end{array}
$$

$$
\begin{array}{r}
.195 \\
10\overline{)1.950} \\
-10\downarrow \\
\hline
95 \\
-90\downarrow \\
\hline
50
\end{array}
$$

For numbers 15-19, decide which is the better buy. Show or explain your work.

18. 1 pound 4 ounces of meat for $4.99 of 2 pounds 6 ounces for $9.75 (1 pound = 16 ounces)

16+4 = 20 ounces

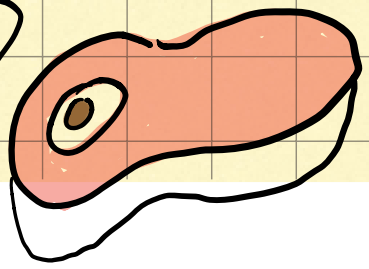
16+16+6 = 38 ounces

≈ $0.25 per ounce

≈ $0.26 per ounce

$$
\begin{array}{r}
0.249 \\
20\overline{)\,4.990} \\
-40\downarrow \\
\hline
99 \\
-80 \\
\hline
190 \\
-180 \\
\hline
10
\end{array}
$$

SAVE ABOUT 1¢ per ounce



$$
\begin{array}{r}
.256 \\
38\overline{)\,9.750} \\
-76\downarrow \\
\hline
215 \\
-190\downarrow \\
\hline
250 \\
-228 \\
\hline
22
\end{array}
$$

For numbers 15-19, decide which is the better buy. Show or explain your work.

19. A 2-liter bottle of soda for $1.39 or a 12-pack of 12-ounce cans for $3.49 (Hint: 2 liters = 67.63 ounces)

67.63 ounces

$\approx$ 0.021 per ounce

144 ounces

$\approx$ 0.023 per ounce

```
          .0205
67.63 | 1.390000
      - 13526
        37400
      - 33815
         3585
```

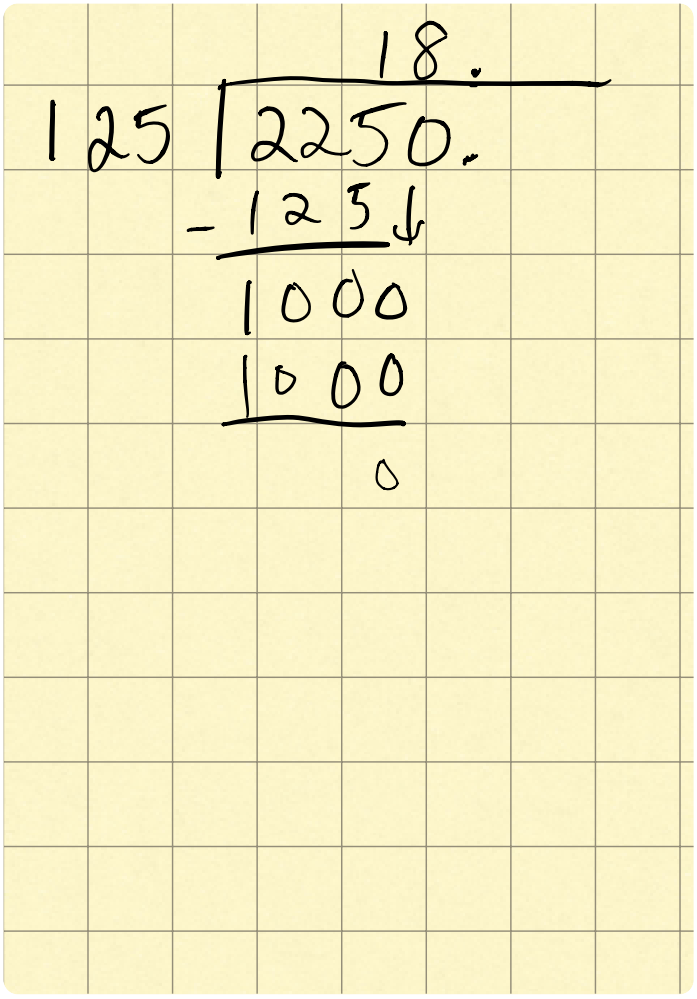
Save about 2/10 of a cent per ounce

```
          .023
144 | 3.49000
      - 288
        610
      - 432
        178
```

20. CARS Gas mileage is the average number of miles you can drive a car per gallon of gasoline. A test of a new car resulted in 2,250 miles being driven using 125 gallons of gas. Find the car's gas mileage.

$\frac{2250}{125} \div 125 = \frac{18 \text{ mi}}{1 \text{ g}}$

18 miles per gallon

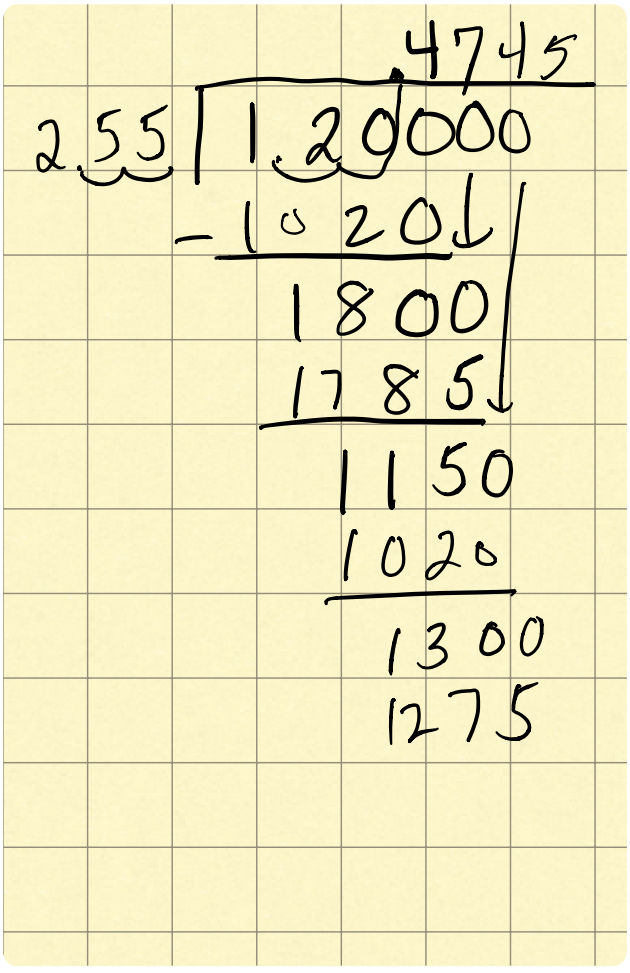


21. ART An auction in New York City, a 2.55-square inch portrait of George Washington sold for $1.2 million. About how much did the buyer pay per square inch of the portrait?

$$\frac{\$1.2 \text{ million} \div 2.55}{2.55 \text{ in}^2 \div 2.55}$$

$\$0.47$ million per in^2.

$\approx 470{,}000$ per in^2



22. Last season, a baseball player scored 14 runs in 18 games. This season, the baseball player scored 12 runs in 15 games. Find the number of runs scored per game in each season. Round your answers to the nearest hundredth. Then identify the season in which the player scored more runs per game.

$\frac{14\text{ r} \div 18}{18\text{ g} \div 18} = \frac{0.\overline{7}\text{ r}}{1}$

0.78 runs per g

$\frac{12\text{ r}}{15\text{ g}} = \frac{0.8\text{ r}}{1\text{ g}}$

0.80 runs per game

$$
\begin{array}{r}
.77 \\
18\overline{)14.000} \\
-126 \\
\hline
140 \\
-126 \\
\hline
140
\end{array}
$$

$$
\begin{array}{r}
.8 \\
15\overline{)12.00} \\
-120 \\
\hline
0
\end{array}
$$

23. At a lake there are 2 boat rental shops. Shop A charges $210 for a 4-hour rental, and shop B charges $228 for a 6-hour rental. Which shop charges more per hour? How much more expensive is this shop?

$\frac{210 \div 4}{4 \div 4} = \frac{52.5}{1}$ $52.5 per hour

$\frac{228 \div 6}{6 \div 6} = \frac{38}{1}$ $38 per hour

```
   52.5
4 | 210.0
    20
    10
    -8
    ---
    20
    20
    --
     0
```

```
    38
6 | 228
   -18
   ---
    48
    48
    --
     0
```

$14.50 More per hour!!!