

STUDY LINK
10•1

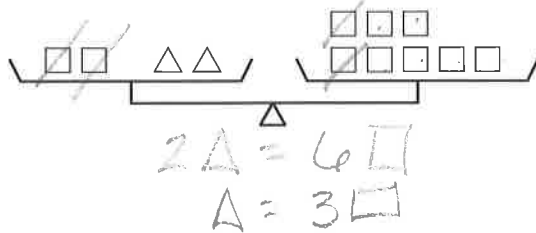
Pan-Balance Problems



In each figure below, the two pans are in perfect balance. Solve these pan-balance problems.

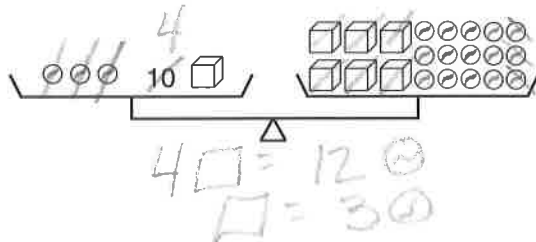
1. One triangle weighs

as much as 3 squares.



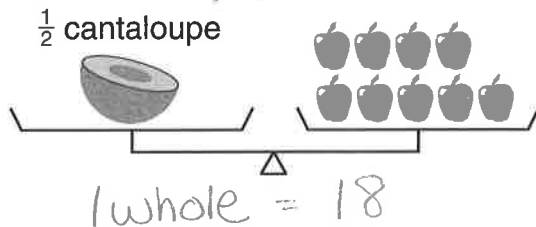
2. One cube weighs

as much as 3 marbles.



3. Two cantaloupes weigh

as much as 36 apples.

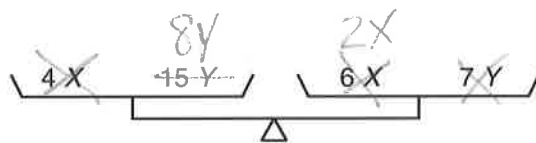


18
x 2

36

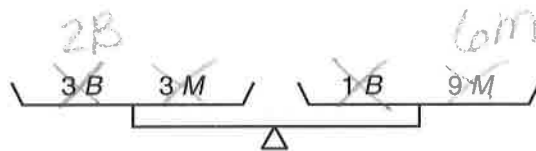
4. One X weighs

as much as 4 Ys.



5. One B weighs

as much as 3 Ms.



Practice

6.
$$\begin{array}{r} 34,217 \\ - 2,849 \\ \hline 31,368 \end{array}$$

7.
$$\begin{array}{r} 15,990 \\ - 8,245 \\ \hline 7,745 \end{array}$$

8.
$$\begin{array}{r} 10136 \\ 8896 \\ \hline 19032 \end{array}$$
 $8.896 = \underline{2.574}$

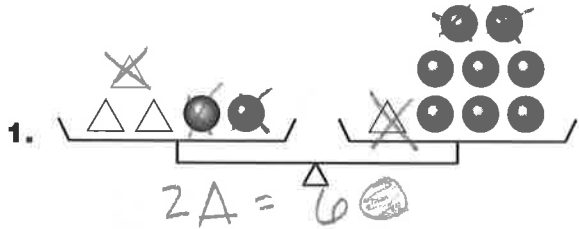
9. $36 \div (-42) = \underline{-6}$

STUDY LINK
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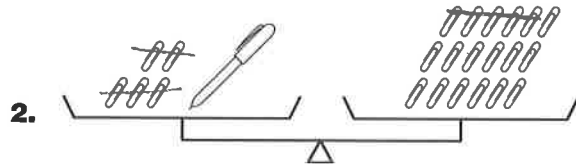
Pan-Balance Problems



In each figure below, the two pans are in perfect balance. Solve these pan-balance problems.



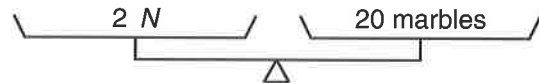
One triangle weighs
as much as 3 balls.



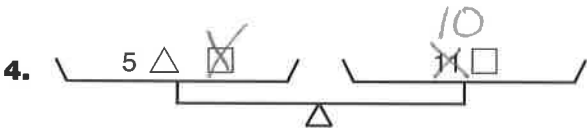
One pen weighs
as much as 13 paper clips.



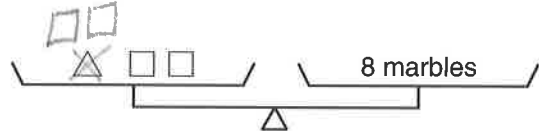
M weighs
as much as 5 marbles.



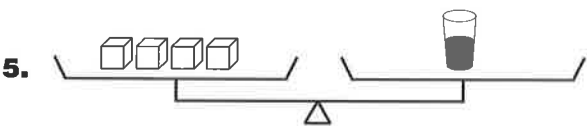
N weighs
as much as 10 marbles.



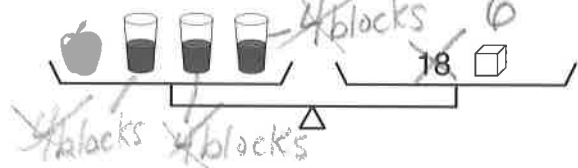
One \triangle weighs
as much as 2 \square s.



One \square weighs
as much as 2 marbles.



One cup of juice weighs
as much as 4 blocks.



One apple weighs
as much as 6 blocks.

Practice

Fill in the missing numbers to make true sentences.

6. 26 = $(7 + 45) / 2$

8. $((14 * 3) + 14) - 6 =$ 50
42 + 14 = 56

7. $((28 / 7) + 12) / 8 =$ 2

9. 0 = $(3 - 3) * ((34 / 2) * 115)$

Anything times zero is always zero. **297**

Study Link 10.3

① Augusto = $2 \times (L \times m)$

② $\frac{1}{4} * (m - (1 + s))$

③ a $2 \times 3 = 6 + 5 = 11$ Rule is $\times 3$
 $4 \times 3 = 12 + 5 = 17$ and then $+ 5$

b $D = 3n + 5$

④ a $7 \times 6 = 42 + 15 = 57$ Rule is $\times 6$
 $10 \times 6 = 60 + 15 = 75$ and then $+ 15$

b $R = (E \times 6) + 15$

Practice 2

⑤ ${}^4 384$

$$\begin{array}{r} 1.5 \\ \hline 1920 \\ + 3840 \\ \hline 5760 \end{array}$$

or

384

0	3	0	0	4	!
5	1	5	0	2	5
					76.0

⑦

$$\begin{array}{r} 120 \frac{3}{7} \\ 7 \overline{) 843} \\ \underline{-76} \\ 14 \\ \underline{-14} \\ 03 \end{array}$$

or
120R3

⑥ 50.3

$$\begin{array}{r} 89 \\ \hline 4527 \\ 40240 \\ \hline 4,476.7 \end{array}$$

or

50.3

4	4	0	0	2	4	8
4	4	5	0	2	7	9
					16.7	

⑧

$$\begin{array}{r} 8.8 \\ 8 \overline{) 670.4} \\ \underline{-64} \\ 64 \\ \underline{-64} \\ 0 \end{array}$$

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Representing Rates



Complete each table below. Then graph the data and connect the points.

1. a. Cherry tomatoes cost \$2.50 per pound.
 Rule: Cost = \$2.50 * number of pounds

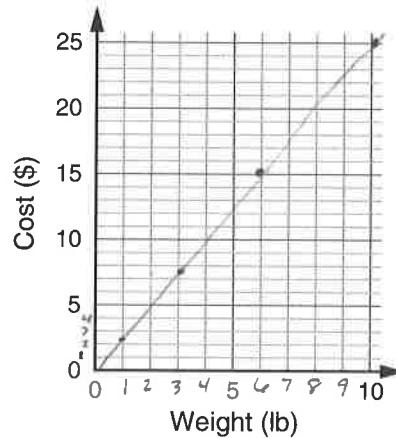
Weight (lb) (w)	Cost (\$) ($2.50 * w$)
1	2.50
3	7.50
6	15.00
10	25.00

$$1 \times 2.50 =$$

$$3 \times 2.50 =$$

$$15 \div 2.50 =$$

$$10 \times 2.50 =$$



- b. Plot a point to show the cost of 8 pounds.
 How much would 8 pounds of cherry tomatoes cost? $8 \times 2.50 = 20$
- c. Would you use the graph, the rule, or the table to find out how much 50 pounds of cherry tomatoes would cost? Explain.

Any are correct, students need to explain their thinking.

2. a. Chantel is planning a trip to drive across country.
 Her car uses 1 gallon of gasoline every 24 miles.
 Rule: distance = 24 * number of gallons

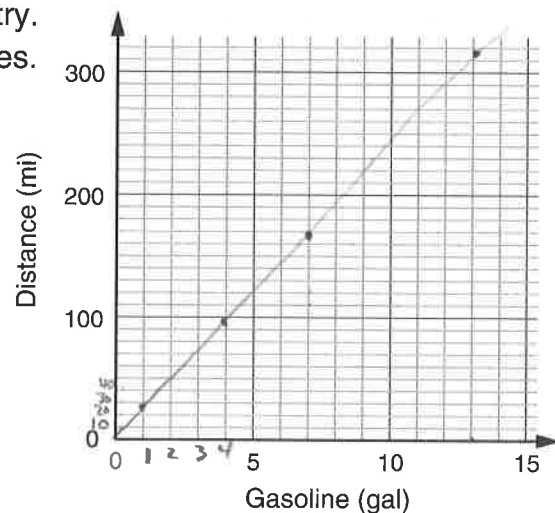
Gasoline (gal) (g)	Distance (mi) ($24 * g$)
1	24
4	96
7	168
13	312

$$1 \times 24 =$$

$$4 \times 24 =$$

$$168 \div 24 =$$

$$13 \times 24 =$$



- b. Plot a point to show the distance the car would travel on 6 gallons of gasoline. How many miles would it go? 144 miles
- c. Would you use the graph, the rule, or the table to find out how far the car would travel on 9 gallons of gasoline? Explain.

Any are correct. Students just need to explain their reasoning.

Cricket Study 10.5

① $t = \frac{c - 40}{4} + 50$
 (temperature)

② $t = \frac{80 - 40}{4} + 50$ $t = 60^\circ\text{F}$

$\frac{40}{4} + 50 = t$

③ (temperature) ^{15 sec chirps}
 $t = c + 37$

④ $t = 35 + 37$
 $t = 72^\circ\text{F}$

⑤ a) $t = \frac{30 \times 4}{4} + 50 = \frac{120 - 40}{4} + 50 = \frac{80}{4} + 50 = 70^\circ\text{F}$

b) $t = 30 + 37 = 67^\circ\text{F}$

Practice

⑥ $67 \frac{5}{5}$
 $- 2 \frac{2}{5}$

 $4 \frac{3}{5}$

⑦ $\frac{1}{2} = \frac{6}{12}$
 $2 \frac{2}{3} = \frac{8}{12}$
 $3 \frac{3}{4} = \frac{9}{12}$
 $+ \frac{1}{12}$

$\frac{24}{12} = 2 + 3 + 2 + 1 = 8$

⑧ $\frac{2}{3} \times \frac{2}{3} = \frac{4}{9} = \frac{2}{9} = \frac{2}{9}$

⑨ $\frac{12}{9} \times \frac{3}{1} = \frac{36}{9} = 4$

STUDY LINK
10•6

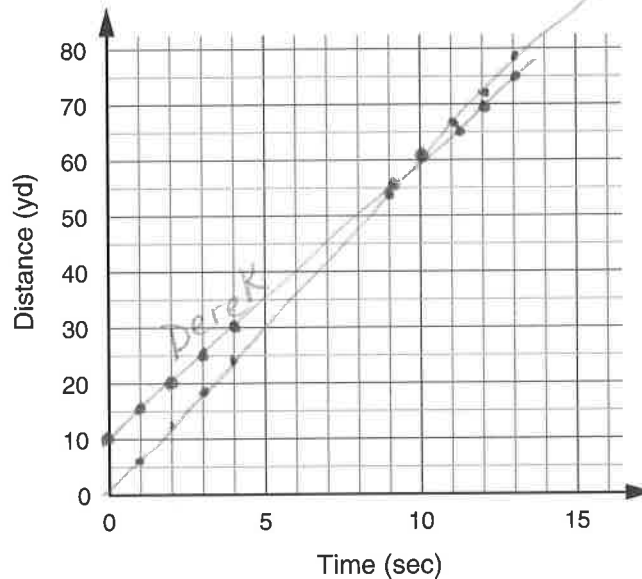
Interpreting Tables and Graphs



Natasha is 12 years old and runs an average of 6 yards per second. Derek is 8 years old and runs about 5 yards per second. Natasha challenged Derek to an 80-yard race and told him she would win even if he had a 10-yard head start.

1. Complete the table showing the distances Natasha and Derek are from the starting line after 1 second, 2 seconds, 3 seconds, and so on.

Time (sec)	Distance (yd)	
	Natasha	Derek
Start	0	10
1	6	15
2	12	20
3	18	25
4	24	30
9	54	55
10	60	60
11	66	65
12	72	70
13	78	75



2. Use the table to write rules for the distance covered by Natasha and Derek.

Natasha's Rule: multiply sec \times 6

Derek's Rule: multiply sec \times 5 + 10 head start

3. Graph the results of the race between Natasha and Derek on the grid above. Label each line.

4. a. Who wins the race? Natasha
- b. What is the winning time? 13 sec.
- c. At what time in the race did Natasha take the lead? After 10 sec.

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Mystery Graphs

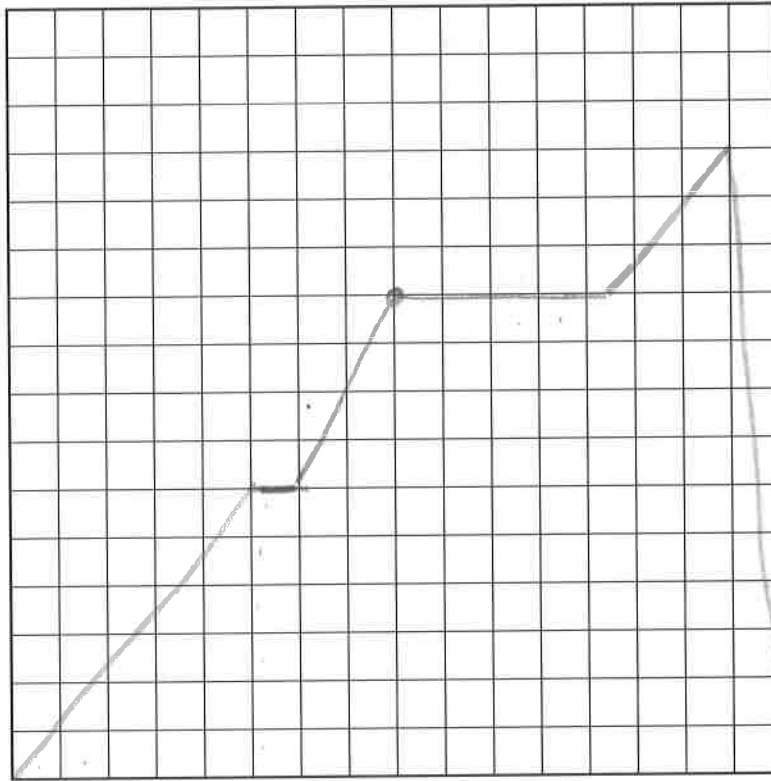


Create a mystery graph on the grid below. Be sure to label the horizontal and vertical axes. Describe the situation that goes with your graph on the lines provided.

Sample
answer

Dog's Travel with Me

Distance



time

I threw the ball to my dog & she chased it. She stopped to smell the grass. Then once she caught it, she played with it. Next she got distracted by a neighbor. Finally she brought it back to me.

Reminder: Look for examples of ratios and bring them to school.

Study Link 10.8

$$\begin{array}{r} \textcircled{1} \text{ a) } 3.14 \\ \times \quad 7 \\ \hline 21.98 \text{ cm} \end{array}$$

$$\begin{array}{r} \text{b) } 6.4 \\ + 6.4 \\ \hline 12.8 \end{array}$$

$$\begin{array}{r} \quad \quad \quad 12 \\ \quad \quad \quad 12.8 \\ \times 3.14 \\ \hline \quad 512 \\ \quad 1280 \\ 38400 \\ \hline 40.192 \text{ cm} \end{array}$$

$$\begin{array}{r} \textcircled{2} \text{ a) } 3.14^2 \\ \times \quad 27 \\ \hline 2198 \\ 6280 \\ \hline 84.78 \text{ cm} \end{array}$$

b) About 85cm

Circumference is around the circle once.

$$\begin{array}{r} \textcircled{3} \quad \quad \quad 22 \text{ inches} \\ 3.14 \rightarrow 3 \overline{) 66} \\ \quad \underline{-66} \\ \quad \quad 06 \\ \quad \quad \underline{-6} \\ \quad \quad \quad 0 \end{array}$$

Study Link 10.9

① circumference ② area ③ area

④ circumference

⑤ $4 \times 4 = 16$ 3.14

$$\begin{array}{r} \times \quad 16 \\ \hline 1884 \\ + 3140 \\ \hline 4024 \end{array}$$

⑥ $3.14 \rightarrow 3$

$28 \div 3 = 9$ About

⑦ 10.0 is diameter $\frac{1}{2}$ is radius

$3.14 \overline{) 31.4}$

radius

⑤

⑧

