




Lesson 3

Thursday 25th June 2020

I am learning to answer reasoning and problem solving arithmetic fraction questions.

Try your best to answer as many questions as you can. 😊

Reasoning Questions

Key vocabulary:	Your answer
<p>Jack is calculating $4\frac{2}{7} - 2\frac{6}{7}$ He adds $\frac{1}{7}$ to both numbers.</p> <div style="display: flex; align-items: center;">  <div style="border: 1px solid orange; border-radius: 15px; padding: 10px; background-color: #fff9c4;"> $4\frac{2}{7} - 2\frac{6}{7} = 4\frac{3}{7} - 3$ <p>so the answer is $1\frac{3}{7}$</p> </div> </div> <p>Explain why Jack is correct.</p> <hr style="border: 0; border-top: 1px solid gray; width: 400px; margin-top: 10px;"/>	<p>Jack has increased both mixed numbers by $\frac{1}{7}$ so the difference has remained constant.</p>
<p>Eva and Amir both work on a homework project.</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>Eva</p>  </div> <div style="border: 1px solid green; border-radius: 15px; padding: 10px; background-color: #e8f5e9;"> <p>I spent $4\frac{1}{4}$ hours a week for 4 weeks doing my project.</p> </div> </div> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="border: 1px solid orange; border-radius: 15px; padding: 10px; background-color: #fff9c4;"> <p>I spent $2\frac{3}{4}$ hours a week for 5 weeks doing my project.</p> </div> <div style="margin-left: 10px;">  Amir </div> </div> <p>Who spent the most time on their project?</p> <p>Explain your reasoning.</p>	<div style="background-color: #e0f2f1; padding: 10px;"> $4 \times 4\frac{1}{4} = \frac{68}{4}$ $= 17 \text{ hours}$ $5 \times 2\frac{3}{4} = \frac{55}{4}$ $= 13\frac{3}{4} \text{ hours}$ <p>Eva spent $3\frac{1}{4}$ hours longer on her project than Amir did.</p> </div>

Problem Solving

- 8 Eva and Amir are working out this calculation.

$$\frac{1}{4} + \frac{25}{100} - \frac{2}{8} - \frac{9}{36}$$



This is going to be very difficult, because I can't find a common denominator.

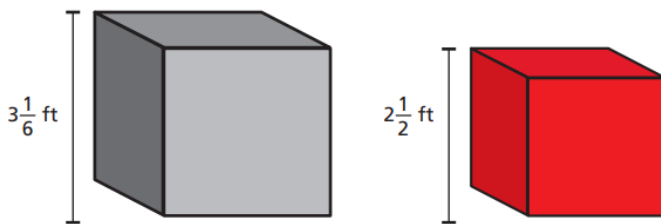


I have found an easier way.

Find Amir's solution. Explain how this calculation can be solved.

All four fractions are equivalent to $\frac{1}{4}$ so the answer is 0.

9



Jack builds a tower using grey blocks.
 Alex builds a tower using red blocks.
 The towers are exactly the same height.
 How many blocks could they each have used?

Jake uses 15 and Alex uses 19.

A car is travelling from Halifax to Brighton.

In the morning, it completes $\frac{2}{3}$ of the journey.

In the afternoon, it completes $\frac{1}{5}$ of the journey.

What fraction of the journey has been travelled altogether?

What fraction of the journey is left to travel?

If the journey is 270 miles, how far did the car travel in the morning?

How far did the car travel in the afternoon?

How far does the car have left to travel?

The car has travelled $\frac{13}{15}$ of the journey altogether.

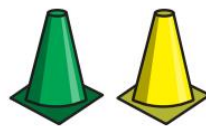
There is $\frac{2}{15}$ of the journey left to travel.

The car travelled 180 miles in the morning.
The car travelled 54 miles in the afternoon.
The car has 36 miles left to travel.

6 There are some cones in the PE shed.

Classes 1, 2 and 3 share them equally.

- Class 1 put theirs into 4 equal piles.
- Class 2 put theirs into 5 equal piles.
- Class 3 put theirs into 11 equal piles.

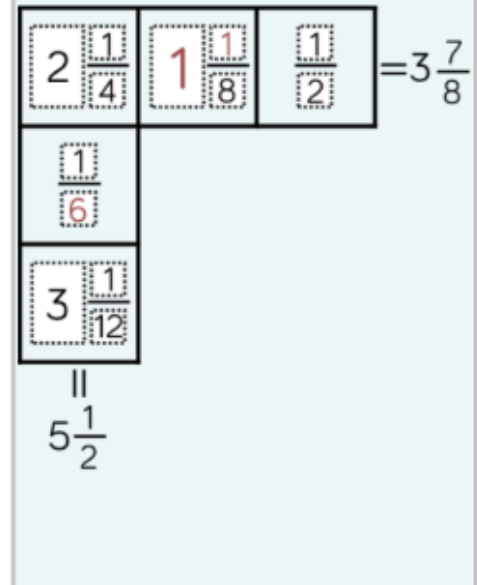
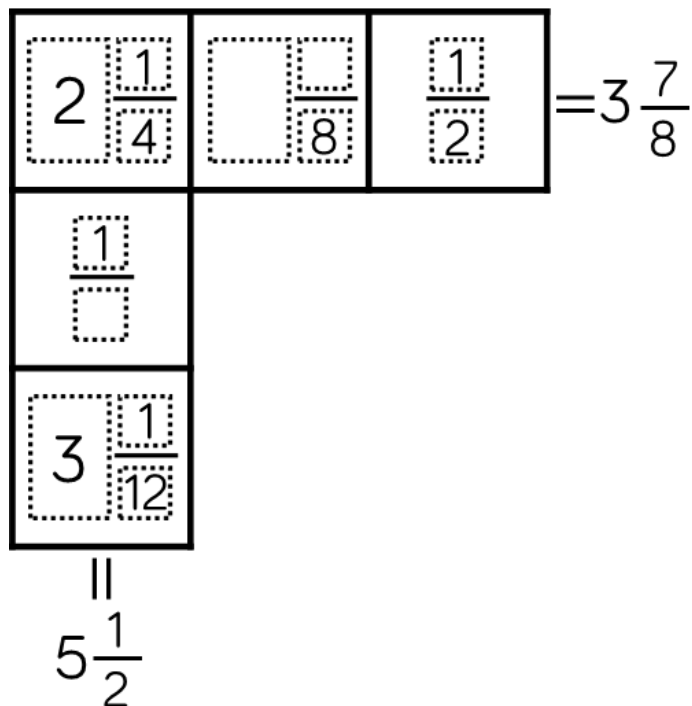


What fraction of the whole number of cones is in each pile?

	Fraction in each pile
Class 1	
Class 2	
Class 3	

Class 1 = $\frac{1}{12}$
Class 2 = $\frac{1}{15}$
Class 3 = $\frac{1}{33}$

Each row and column adds up to make the total at the end.
Use this information to complete the diagram.



The mass of Annie's suitcase is $29\frac{1}{2}$ kg.
Teddy's suitcase is $2\frac{1}{5}$ kg lighter than Annie's.
How much does Teddy's suitcase weigh?
How much do the suitcases weigh altogether?



There is a weight allowance of 32 kg per suitcase.
How much below the weight allowance are Annie and Teddy?

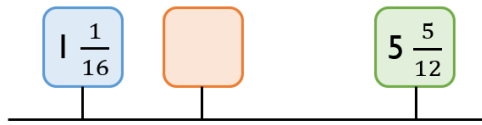
Teddy's suitcase weighs $27\frac{3}{10}$ kg

The suitcases weigh $56\frac{4}{5}$ kg altogether.

Annie is $2\frac{1}{2}$ kg under the weight allowance.

Teddy is $4\frac{7}{10}$ kg under the weight allowance.

A blue, orange and green box are on a number line.



The number in the green box is $3 \frac{2}{3}$ more than the orange box.

The number in the orange box is:

The number in the orange box is greater than the number in the blue box.

$$5 \frac{5}{12} - 3 \frac{2}{3} = 1 \frac{9}{12}$$

The orange box is

$$1 \frac{3}{4}$$

$$1 \frac{3}{4} - 1 \frac{1}{16} = \frac{11}{16}$$

The orange box is $\frac{11}{16}$ greater than the blue box.

Rosie walks for $\frac{3}{4}$ of an hour over 3 days.

She walks for the same amount of time each day.

How many minutes does Rosie walk each day?

She walks 15 minutes each day.

