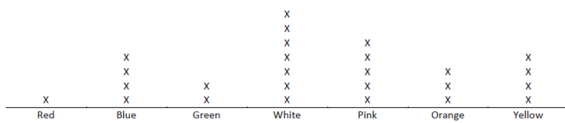A t-shirt manufacturing company surveyed teen-aged girls on their favorite t-shirt color to guide the company's decisions about how many of each color t-shirt they should design and manufacture. The results of the survey are shown here.

**Favorite T-Shirt Colors of Teen-Aged Girls Surveyed**

```
                              x
                              x
                              x         x
        x                     x         x                           x
        x                     x         x         x                 x
        x         x           x         x         x                 x
  x     x         x           x         x         x                 x
  Red   Blue      Green       White     Pink      Orange   Yellow
```

1. Describe a rao relaonship, in the context of this survey, for which the rao is 3: 5.

The ratio of number of girls who liked an orange T-shirt best to the number of girls who liked a pink shirt best is 3:5.

2. For each rao relaonship given, fill in the rao it is describing.

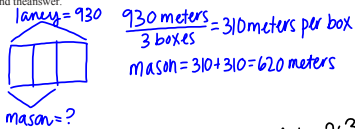| Descripon of the Rao Relaonship (Underline or highlight the words or phrases that indicate the descripon is a rao.)	Rao
For every 7 white t-shirts they manufacture, they should manufacture 4 yellow t-shirts. The rao of number of white t-shirts to number of yellow t-shirts should be…	7:4
For every 4 yellow t-shirts they manufacture, they should manufacture 7 white t-shirts. The rao of number of yellow t-shirts to number of white t-shirts should be…	4:7 4 to 7
The rao of number of girls who liked a white t-shirt best to number of girls who liked a colored t-shirt best was…	7:19
For each red t-shirt they manufacture, they should manufacture 4 blue t-shirts. The rao of number of red t-shirts to number of blue t-shirts should be…	1:4
They should purchase 4 bolts of yellow fabric for every 3 bolts of orange fabric. The rao of number of bolts of yellow fabric to number of bolts of orange fabric should be…	4:3
The rao of number of girls who chose blue or green as their favorite to the number of girls who chose pink or red as their favorite was …	1:1
Three out of every 26 t-shirts they manufacture should be orange. The rao of number of orange t-shirts to total number of t-shirts should be…	3:26

Shanni and Mel are using ribbon to decorate a project in their art class. The rao of the length of Shanni's ribbon to the length of Mel's ribbon is 7: 3.
Draw a tape diagram to represent this rao:

S [| | | | | |]
M [| |]
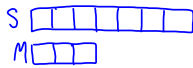
Mason and Laney ran laps to train for the long-distance running team. The rao of the number of laps Mason ran to the number of laps Laney ran was 2 to 3.
a. If Mason ran 4 miles, how far did Laney run? Draw a tape diagram to demonstrate how you found the answer.

Mason ran 4 miles
M [|]   □ = 4÷2 = 2 miles
L [| |]   L = 2×3 (6 miles)
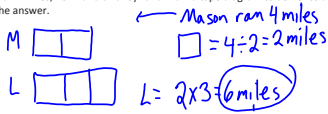
b. If Laney ran 930 meters, how far did Mason run? Draw a tape diagram to determine how you found theanswer.

laney = 930
$\frac{930 \text{ meters}}{3 \text{ boxes}}$ = 310 meters per box
mason = 310 + 310 = 620 meters
mason = ?

c. What raos can we say are equivalent to 2:3?
M:L = 2:3
4:6
620:930
310
620 – M
930 – L

Josie took a long mulple-choice, end-of-year vocabulary test. The rao of the number of problems Josie got incorrect to the number of problems she got correct is 2:9.
a. If Josie missed 8 quesons, how many did she get right? Draw a tape diagram to demonstrate how you foundthe answer.

C [4|4|4|4|4|4|4|4|4] = 36   8÷2 = 4   correct = 9×4 = 36
I [4|4] = 8 incorrect correct □ = 4
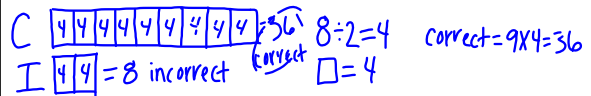
1. The rao of the number of people who own a smartphone to the number of people who own a flip phone is 4:3. If 500 more people own a smartphone than a flip phone, how many people own each type of phone?

difference
S [| | | |]   □ = 500
F [| | |]
      500

S = 4 × 500 = 2000
F = 3 × 500 = 1500
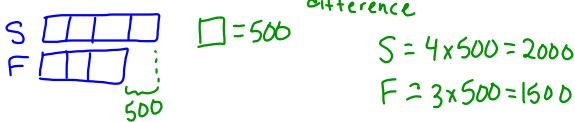
2. Sammy and David were selling water boles to raise money for new football uniforms. Sammy sold 5 water boles for every 3 water boles David sold. Together they sold 160 water boles. How many did each boy sell?

5:3
S [| | | | |] } 160
D [| | |]

□ = 160 ÷ 8 = 20
S = 5 × 20 = 100
D = 3 × 20 = 60