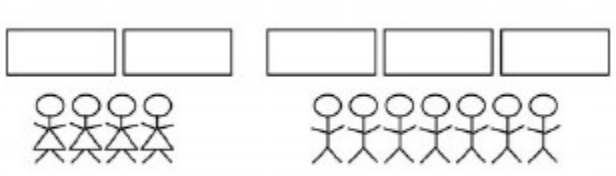
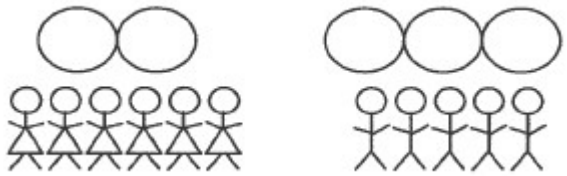
**Solve the following problems without using cross multiplication.**

(1) Boys or girls… who gets more. Explain your reasoning. (Lamon)



(2) Boys or girls… who gets more. Explain your reasoning. (Lamon)



(3) 24 people go in a restaurant and order 18 pizzas. The people are seated at 4 different tables so that 12 are seated at one table, 6 at a second table, 4 at a third table and 2 at the final table. Determine how the pizzas should be split among the tables so that everyone may have the same amount. (Lamon, page 182)

(4) If 6 cats can catch and kill 6 rats in 6 minutes, how many cats will it take to catch and kill 100 rats in 50 minutes? (Hyde, page 96)

(5) The ratio of boys to girls in a class is 3:8. How many girls are in the class if there are 9 boys? (Lamon, page 251, #13)

(6) If 3 pizzas serve 9 people, how many will I need to serve 108 people? (Lamon)

(7) Mac can mow Mr. Greenway's lawn in 45 minutes. Mac's little brother takes twice as long to do the same lawn. How long will it take them if they each have a mower and they work together? (Lamon page 11 - #4)

## Additional Questions (Work on these only after completing problems 1 to 7)

(8) 3 people can make 5 electrical seismometers in 8 hours, how many people are needed to make 100 seismometers in 24 hours? (Hyde, page 99)

(9) Sandra wants to buy an MP3 Player costing $210. Her mother agreed to pay $5 for each $2 Sandra saved. How much will each contribute? (Lamon, page 7, #7)

(10) A company usually sends 9 men to install a security system in an office building and they do it in about 96 minutes. Today they only have 3 and do the same job. How much time should be scheduled to complete this job? (Lamon, page 11, #8)

(11) You decided to check the accuracy of the speedometer in your car by timing your travel between miles markers on the highway. If you found that it was 50 seconds between markers, what would you know? (Lamon, page 252, #20)

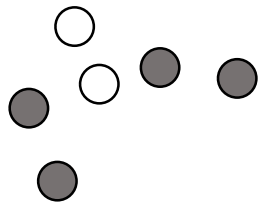
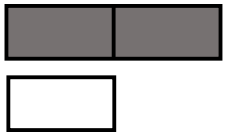
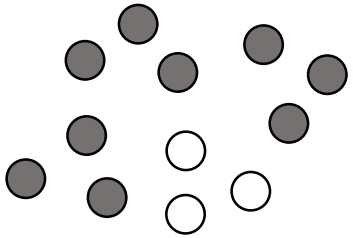
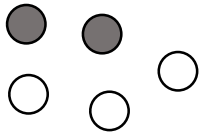
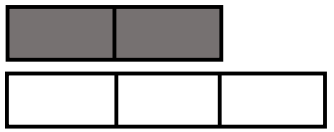
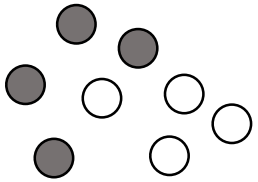
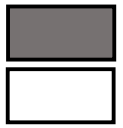
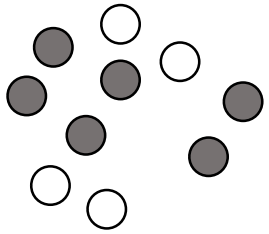
Hyde, Arthur A. *Understanding Middle School Math: Cool Problems to Get Students Thinking and Connecting*. Portsmouth, NH: Heinemann, 2009. Print.

Lamon, Susan J. *Teaching Fractions and Ratios for Understanding: Essential Content Knowledge and Instructional Strategies for Teachers*. 3rd ed. New York: Routledge, 2012. Print.

**Visualizing Proportions Sort**
Answer Key

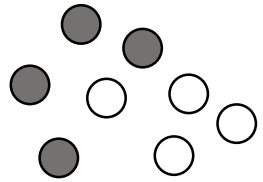
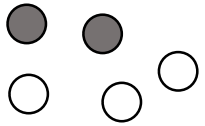
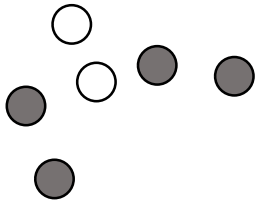
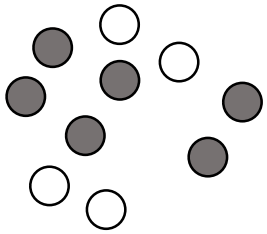
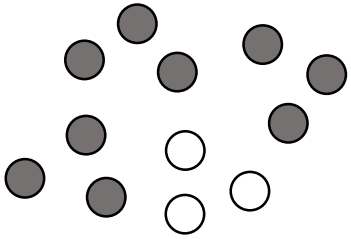
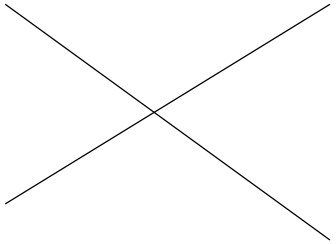
www.kymath.org

Link to Google JamBoard Version:
https://jamboard.google.com/d/1xoAwgkgUVaeL7gR0R1INKuZKgfXOpP5zijEcuI5Yc7M/viewer

| | | | |
|---|---|---|---|
|  | $\frac{2}{3}$ of the set is grey | The ratio of grey to white is 2:1 |  |
|  | $\frac{3}{4}$ of the set is grey | The ratio of grey to white is 3:1 |  |
|  | $\frac{2}{5}$ of the set is grey | The ratio of grey to white is 2 : 3 |  |
|  | $\frac{1}{2}$ of the set is grey | The ratio of grey to white is 1:1 |  |
|  | $\frac{3}{5}$ of the set is grey | The ratio of grey to white is 3:2 | Draw this  |

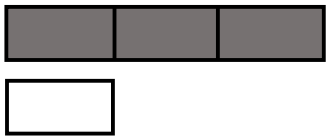
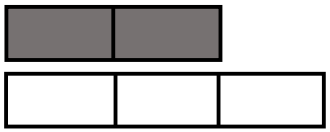
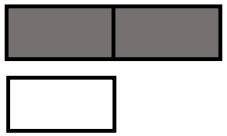
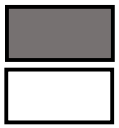
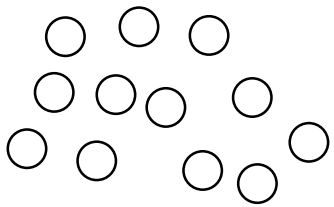
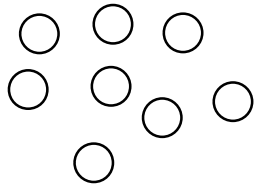
Student Cards Page 1

Cut apart cards then sort into sets of 3.
Fill in the missing numbers.

| | | | |
|---|---|---|---|
|  |  |  |  |
|  | $\frac{3}{5}$ of the set is grey | $\frac{2}{5}$ of the set is grey | $\frac{1}{2}$ of the set is grey |
| $\frac{3}{4}$ of the set is grey | ☐ of the set is grey | The ratio of grey to white is __:__ | The ratio of grey to white is 3:1 |
| The ratio of grey to white is 3:2 | The ratio of grey to white is 2:1 | The ratio of grey to white is 1:1 |  |

Student Cards Page 2

Match Bar Model cards to the sets from Page 1. Draw your own bar model on the blank card.

| | | | |
|---|---|---|---|
| |  |  |  |
|  | Use the spaces below to create 2 matching sets. Color some of the circles grey. Fill in the missing values, then draw a bar model in the last card of each set. | | |
|  | ☐ of the set is grey | The ratio of grey to white is __:__ | |
|  | ☐ of the set is grey | The ratio of grey to white is __:__ | |