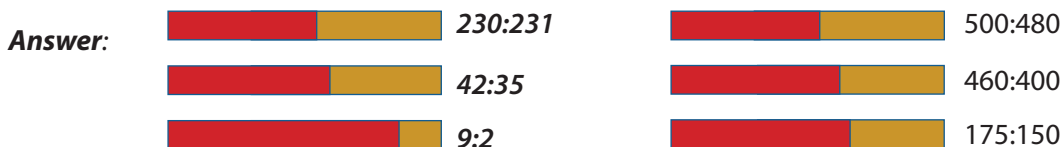# Atlantean Dodgeball
Answer Key

The Atlantean Dodgeball animation is available on iTunes U (search "Math Snacks") and at mathsnacks.org

1. In the Atlantean Dodgeball tournament, both teams had lost about half of their members going into the final round. The Sea Urchins' coach looked at the team sizes of 500 and 480 and was happy that the teams were still fairly evenly matched (close to a 1:1 ratio). The Belugas coach was upset because the Sea Urchins had 20 more players (a 20-player difference).
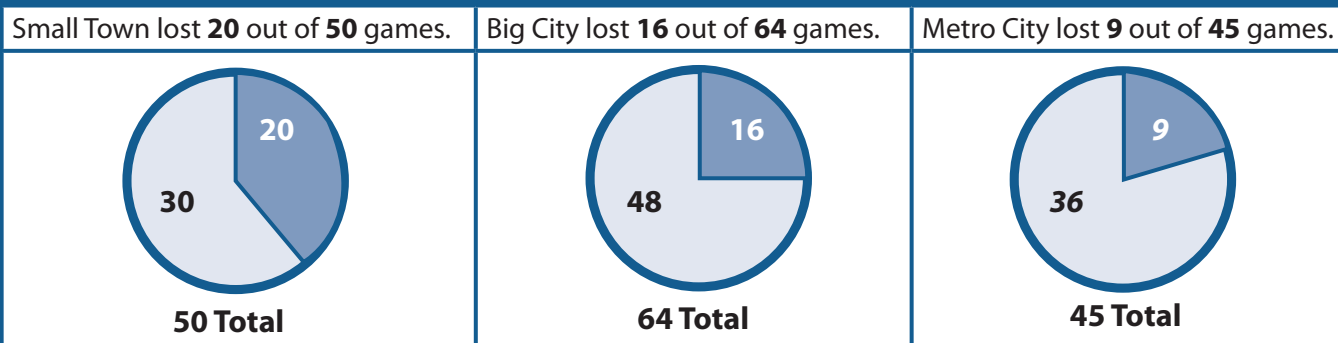
A. Fill in the empty bar graphs to estimate the ratios of Sea Urchins to Belugas as the score changes during the tournament.

Answer:

230:231	500:480
42:35	460:400
9:2	175:150

B. A newspaper reports that the final ratio of the tournament was 2:9. Are they correct? Why or why not?

Answer: *If the paper reported the ratio of Belugas to Sea Urchins as 2:9, it would be correct, but if it did not specify Belugas to Sea Urchins it could be interpreted wrongly.*

2. Here are three pie charts that show wins and losses as parts of the total games played. Fill in the empty circle with the ratio of wins to losses for Metro City.

Small Town lost **20** out of **50** games.	Big City lost **16** out of **64** games.	Metro City lost **9** out of **45** games.
20 / 30 — **50 Total**	16 / 48 — **64 Total**	9 / 36 — **45 Total**

A. Who do you think is the biggest loser? Why?

Answer: Small town. Justifications may vary. One answer would be that Small Town lost 40%, Big City lost 25%, Metro City lost 20%.

B. What is the ratio of games lost to total games for each team? Write your answer as a fraction.

Team Name	Ratio	Fraction	Simplified Fraction	Decimal	Percentage of games lost
Small Town	*20:50*	*20/50*	*2/5*	*0.40*	*40%*
Big City	*16:64*	*16/64*	*1/4*	*0.25*	*25%*
Metro City	*9:45*	*9/45*	*1/5*	*0.20*	*20%*

3. You and your friend, Joe, are arguing about which baseball team is the best. Big City's baseball team, Joe's favorite, had 48 wins and 16 losses for the season. You think your team, Metro City, has a better record because it lost fewer games. Joe thinks his team has a better record because they won more games.

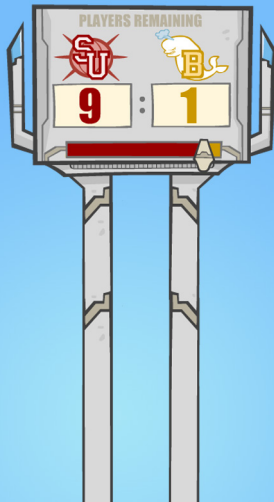Try to settle the argument by filling out the table below.

Team	Games	Wins	Losses	Win to Loss Ratio	Wins to Total Ratio	Losses to Total Ratio
Small Town	50	30	20	30:20	30:50	20:50
Big City	64	48	16	48:16	48:64	16:64
Metro City	45	36	9	36:9	36:45	9:45

A. How are the ratios of Win:Loss, Wins:Total, and Losses:Total related?

Answer: Total = Wins + Losses

B. Use one or all of these ratios to decide which team has the best record for the season. Explain your answer and show your work.

Answers will vary, but reasoning should be similar to that in 2c or 3a of Bonus Activities.

---

4. 9:1 is the ratio of Sea Urchin players to Beluga players. Is this a part to part or part to whole ratio?

Answer: Part-to-part

A. Describe how this ratio can be represented in fraction form.

Answer: Fractions represent part-to-whole relationships, so the fraction representation of the 9:1 ratio can be written as follows: 1/10 of the players left are Belugas and 9/10 of the players left are Sea Urchins. Emphasize the importance of labeling.