

Session 1, Open-Response Question



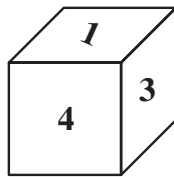
- 22 Lionel and Tracy are playing a game using two six-sided number cubes. The faces of each cube are numbered as shown below.



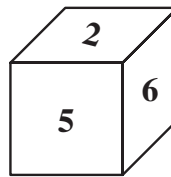
Lionel has a red cube and Tracy has a green cube. To play the game they both roll their cubes at the same time.

- The numbers that show face up when the cubes stop rolling are used to make a fraction.
- The number on the red cube is used for the numerator and the number on the green cube is used for the denominator.

For example, the results shown below would make the fraction $\frac{1}{2}$.



red cube



green cube

- Lionel wins 1 point if the fraction formed has a value less than one.
 - Tracy wins 1 point if the fraction has a value greater than one.
 - No one gets a point if the fraction is equal to one.
- Make a list or a table in your Student Answer Booklet of all of the fractions possible from rolling 1 red and 1 green cube. How many total different fractions are there?
 - If Lionel (red cube) rolls a 3, what is the probability that Tracy (green cube) wins 1 point? Show your work or explain how you obtained your answer.
 - Using your table, what is the probability of each player winning a point on a given turn? Do you think this game is fair to both players? Show your work or explain how you obtained your answer.

Reporting Category for Item 22: *Data Analysis, Statistics, and Probability*

Mathematics, Grade 8

Session 2, Multiple-Choice Questions



- 23 The table below shows the annual salaries of employees of a company based on years of employment.

Annual Salary

Years of Employment	Annual Salary
Starting Salary	\$30,000
1	\$31,500
2	\$33,000
3	\$34,500
4	\$36,000

Based on the data in the table, what is the annual salary of an employee who has just completed 10 years of service with this company?

- A. \$46,500
- B. \$45,000
- C. \$43,500
- D. \$40,000

Reporting Category for Item 23: Patterns, Relations, and Algebra

Mathematics, Grade 8

- 24 Which of the following fractions is equivalent to 0.2×0.6 ?

- A. $\frac{3}{25}$
- B. $\frac{12}{25}$
- C. $\frac{3}{5}$
- D. $\frac{6}{5}$

Reporting Category for Item 24: *Number Sense and Operations*

- 25 Mr. Gonzales is planning to drive 135 miles from West Stockbridge to Boston on the Mass Pike. He estimates that he will average 55 miles per hour. What is the latest time he can leave West Stockbridge to arrive in Boston at 11:00 A.M.?

- A. 9:30 A.M.
- B. 8:30 A.M.
- C. 7:30 A.M.
- D. 6:30 A.M.

Reporting Category for Item 25: *Measurement*

- 26 Ms. Jordan bought a box of 32 granola bars. Every day each of her three children ate one granola bar for lunch. Now there are only 11 bars left. Which equation can be used to find the number of days, n , that the children ate the bars for lunch?

- A. $32 = \frac{n}{3} - 11$
- B. $32 = 3n - 11$
- C. $32 = \frac{n}{3} + 11$
- D. $32 = 3n + 11$

Reporting Category for Item 26: *Patterns, Relations, and Algebra*