



Changing the Score

Let's keep increasing or decreasing an amount by a percentage.

18.1

Math Talk: Rewriting Expressions

Express mentally each percent change using an expression that uses only multiplication.

- x increased by 5%
- y decreased by 10%
- z increased by 25%
- w decreased by 2.5%



18.2 Your New Score

Round 1: Your starting score is 50. Roll your number cube 10 times. If you are in group:

- A, your score increases by 5% every time you roll a 4, 5, or 6 (and stays the same otherwise).
- B, your score increases by 10% every time you roll a 5 or a 6 (and stays the same otherwise).
- C, your score increases by 20% every time you roll a 6 (and stays the same otherwise).

Compute your new score after each roll.

| roll | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|----|---|---|---|---|---|---|---|---|---|----|
| calculation | | | | | | | | | | | |
| new score | 50 | | | | | | | | | | |

Round 2: Your starting score is the result from Round 1. Roll your number cube 10 times. If you are in group:

- A, your score decreases by 5% every time you roll a 6 (and stays the same otherwise).
- B, your score decreases by 10% every time you roll a 5 or a 6 (and stays the same otherwise).
- C, your score decreases by 20% every time you roll a 4, 5, or 6 (and stays the same otherwise).

Compute your new score after each roll.

| roll | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|---|---|---|---|---|---|---|---|---|---|----|
| calculation | | | | | | | | | | | |
| new score | | | | | | | | | | | |

1. Mai started with 100 and increased her score by 10% for each successful roll. She had 2 successful rolls.
 - a. Mai thinks her score is 120. Explain why this is incorrect.

 - b. What is Mai's correct score?

2. Han started with 100 points and lost 10% for each successful roll. He had 2 successful rolls.
 - a. Han thinks his score is 80. Explain why this is incorrect.

 - b. What is Han's correct score?

3. Suppose you have 100 points. Would you rather be in a group that gets a 5% increase per successful roll and makes 4 successful rolls, or in a group that gets a 10% increase per successful roll and makes 2 successful rolls?