



# 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?