

The Cooperstown Trophy Vault

Use your algebra skills to determine the numerical values of the glove, bat, diamond, and baseball symbols to reveal the four-digit combination to the stadium championship ring vault.

Name: _____ Date: _____

1 THE KEY

$$\text{Glove} = 6 \quad \text{Baseball} = \square \quad \text{Diamond} = \square \quad \text{Bat} = \square \quad \text{Baseball} = 12 \quad \text{Glove} = -4$$

Every symbol is a whole number from -9 to 20 (some are negative!). A number in front of a shape means multiply: 2 stars = 2 x star. A small 2 after a shape means square it: star² = star x star.

2 FIND THE MISSING VALUES

Some shapes in the key are missing. Use these to work them out, in order, and write them into the key.

$$\text{Diamond} \times \text{Glove} = 24$$

$$\text{Baseball} + 4 = 24$$

$$\text{Diamond} - \text{Diamond} = -16$$

3 CRACK THESE

$$1. \text{Baseball} \times \text{Diamond} - \text{Diamond} = \square$$

$$2. (\text{Diamond} + \text{Glove}) \times \text{Diamond} = \square$$

CODE 1

$$3. \text{Glove}^2 + \text{Diamond} = \square$$

$$4. \text{Diamond} + \text{Baseball} \times \text{Baseball} = \square$$

CODE 2

$$5. \text{Baseball} + \text{Glove} = \square$$

$$6. \text{Diamond} \times (\text{Glove} - \text{Glove}) = \square$$

CODE 3

$$7. \text{Baseball} \times \text{Diamond} - \text{Baseball} = \square$$

$$8. \text{Baseball} - \text{Diamond} - \text{Diamond} = \square$$

CODE 4

$$9. \text{Baseball} \times \text{Diamond} = \square$$

$$10. \text{Diamond} + \text{Baseball} \times \text{Diamond} = \square$$

4 THE VAULT CODE

Write the ONES digit of your answers to problems 2, 4, 6, 8 (the ones tagged CODE 1-4), in that order. That opens the stadium championship ring.

Answer Key

The Cooperstown Trophy Vault · Grade 7 Crack the Code

The key

 pentagon = **6**
  moon = **20** (hidden)
  hexagon = **10** (hidden)
  diamond = **-6** (hidden)

 circle = **12**
  lightning bolt = **-4**

Every symbol is a whole number from -9 to 20 (some are negative!).

- | | | |
|-----|---|-------------|
| 1. | $\bullet \times \blacklozenge - \hexagon$ (circle x diamond - hexagon) | -82 |
| 2. | $(\blacklozenge + \lightningbolt) \times \hexagon$ ((diamond + lightning bolt) x hexagon) | -100 |
| 3. | $\lightningbolt^2 + \blacklozenge$ (lightning bolt ² + diamond) | 10 |
| 4. | $\hexagon + \moon \times \bullet$ (hexagon + moon x circle) | 250 |
| 5. | $\moon + \lightningbolt$ (moon + lightning bolt) | 16 |
| 6. | $\blacklozenge \times (\lightningbolt - \pentagon)$ (diamond x (lightning bolt - pentagon)) | 60 |
| 7. | $\bullet \times \blacklozenge - \moon$ (circle x diamond - moon) | -92 |
| 8. | $\moon - \hexagon - \blacklozenge$ (moon - hexagon - diamond) | 16 |
| 9. | $\moon \times \pentagon$ (moon x pentagon) | 120 |
| 10. | $\blacklozenge + \bullet \times \pentagon$ (diamond + circle x pentagon) | 66 |

Vault code: **0 0 0 6**