



Crack the Vault Code

Someone locked the vault with a 4-digit code. Work out what each shape is worth and crack it.

Name: _____ Date: _____

1 THE KEY

$$\text{⚡} = 13 \quad \text{⚠} = \square \quad \text{?} = \square \quad \text{⛶} = \square \quad \text{♥} = -1 \quad \text{⬠} = 4$$

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.

$$\text{⬠} - \text{▲} = 7$$

$$\text{■} - \text{⬠} = -8$$

$$\text{⛶} + \text{⬠} = 2$$

3 CRACK THESE

1. $\text{⬠} + \text{⚡} = \square$

2. $\text{■} - \text{⛶} - \text{⚡} = \square$

CODE 1

3. $\text{⚡} \times (\text{♥} - \text{▲}) = \square$

4. $\text{▲}^2 - \text{♥} = \square$

CODE 2

5. $\text{⚡} \times \text{■} = \square$

6. $\text{■}^2 - \text{⚡} = \square$

CODE 3

7. $\text{▲} \times (\text{⛶} - \text{⬠}) = \square$

8. $\text{⬠} \times \text{■} = \square$

CODE 4

9. $\text{▲} + \text{⛶} \times \text{♥} = \square$

10. $\text{♥} + \text{■} = \square$

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 vault.

Answer Key

Crack the Vault Code · Grade 7 Crack the Code

The key

⚡ lightning bolt = **13** ▲ triangle = **-3** (hidden) ■ square = **-4** (hidden) ✚ cross = **-2** (hidden)
 ♥ heart = **-1** ⬡ hexagon = **4**

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

1. ⬡ + ⚡ (hexagon + lightning bolt) **17**
2. ■ - ✚ - ⚡ (square - cross - lightning bolt) **-15**
3. ⚡ × (♥ - ▲) (lightning bolt x (heart - triangle)) **26**
4. ▲² - ♥ (triangle^2 - heart) **10**
5. ⚡ × ■ (lightning bolt x square) **-52**
6. ■² - ⚡ (square^2 - lightning bolt) **3**
7. ▲ × (✚ - ⬡) (triangle x (cross - hexagon)) **18**
8. ⬡ × ■ (hexagon x square) **-16**
9. ▲ + ✚ × ♥ (triangle + cross x heart) **-1**
10. ♥ + ■ (heart + square) **-5**

Vault code: **5 0 3 6**