

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

$$\begin{array}{ccccccc} \text{⚡} & = & \square & \text{☾} & = & \square & \text{⊙} & = & \square & \text{⬠} & = & 4 & \text{⊙} & = & \square \\ \blacksquare & = & 18 \end{array}$$

Every symbol is a whole number from 1 to 20. 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.

$$\text{⚡} \times \text{⬠} - \blacksquare = 50$$

$$\bullet^2 = 81$$

$$\text{☾} \times \text{⬠} - \text{⚡} = 35$$

$$\bigcirc \times \bullet - \text{⬠} = 86$$

3 CRACK THESE

$$1. (\text{⬠} + \text{⚡})^2 = \square$$

$$2. 2 \times (\text{⬠} + \bigcirc) - \text{☾} = \square$$

CODE 1

$$3. \blacksquare^2 + \text{⚡} = \square$$

$$4. \text{⚡}^2 + \bullet^2 = \square$$

CODE 2

$$5. (\text{☾} + \text{⚡})^2 = \square$$

$$6. 2 \times (\bullet + \bigcirc) - \text{⚡} = \square$$

CODE 3

$$7. \text{☾}^2 + \bigcirc = \square$$

$$8. (\text{☾} - \text{⬠}) \times (\text{☾} + \text{⬠}) = \square$$

CODE 4

$$9. \text{⚡}^2 + \text{⬠}^2 = \square$$

$$10. (\bullet - \text{⬠}) \times (\bullet + \text{⬠}) = \square$$

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 6 Crack the Code

The key

 lightning bolt = **17** (hidden)
  moon = **13** (hidden)
  ring = **10** (hidden)
  hexagon = **4**
 circle = **9** (hidden)
 square = **18**

Every symbol is a whole number from 1 to 20.

1. $(\text{hexagon} + \text{lightning bolt})^2$ **441**
2. $2 \times (\text{hexagon} + \text{ring}) - \text{moon}$ **15**
3. $\text{square}^2 + \text{lightning bolt}$ **341**
4. $\text{lightning bolt}^2 + \text{circle}^2$ **370**
5. $(\text{moon} + \text{lightning bolt})^2$ **900**
6. $2 \times (\text{circle} + \text{ring}) - \text{lightning bolt}$ **21**
7. $\text{moon}^2 + \text{ring}$ **179**
8. $(\text{moon} - \text{hexagon}) \times (\text{moon} + \text{hexagon})$ **153**
9. $\text{lightning bolt}^2 + \text{hexagon}^2$ **305**
10. $(\text{circle} - \text{hexagon}) \times (\text{circle} + \text{hexagon})$ **65**

Vault code: **5 0 1 3**