



Secret Cat Shelter Code Breaker

Solve the algebraic symbol equations to determine the value of each feline icon and unlock the rescue shelter supply safe.

Name: _____ Date: _____

1 THE KEY

$$\begin{array}{l} \blacktriangle = 15 \quad ? = \square \quad ? = \square \quad \blacklozenge = 8 \quad ? = \square \\ \diamond = \square \end{array}$$

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.

$$\blacksquare^2 = 256$$

$$2\text{ } \text{ } + \blacktriangle = 37$$

$$\blacklozenge \times \text{ } = 154$$

$$\bigcirc \times \blacklozenge - \blacksquare = 110$$

3 CRACK THESE

$$1. \text{ }^2 + \blacksquare^2 = \square$$

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

CODE 1

$$3. 3\blacklozenge - 2\text{ } + \bigcirc = \square$$

$$4. \blacktriangle^2 + \bigcirc^2 = \square$$

CODE 2

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

$$6. \blacklozenge^2 + \blacksquare = \square$$

CODE 3

$$7. \blacklozenge^2 - \text{ }^2 = \square$$

$$8. \blacklozenge \times \blacksquare - \text{ }^2 = \square$$

CODE 4

$$9. \blacklozenge^3 = \square$$

$$10. 3\blacksquare - 2\bigcirc + \text{ } = \square$$

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 cat shelter supply.

Answer Key

Secret Cat Shelter Code Breaker · Grade 6 Crack the Code

The key

 triangle = **15**
  ring = **9** (hidden)
  square = **16** (hidden)
  pentagon = **8**
  moon = **11** (hidden)

 diamond = **14** (hidden)

Every symbol is a whole number from 1 to 20.

1. ² + ² (pentagon² + square²) **320**
2. ² +  (pentagon² + ring) **73**
3. 3 - 2 +  (3 x diamond - 2 x pentagon + ring) **35**
4. ² + ² (triangle² + ring²) **306**
5. ( + )² ((pentagon + square)²) **576**
6. ² +  (diamond² + square) **212**
7. ² - ² (diamond² - moon²) **75**
8.  ×  - ² (diamond x square - moon²) **103**
9. ³ (diamond³) **2744**
10. 3 - 2 +  (3 x square - 2 x ring + pentagon) **38**

Vault code: 3 6 2 3