



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

$$\bigcirc = 11 \quad \boxed{?} = \boxed{} \quad \blacklozenge = 9 \quad \heartsuit = \boxed{} \quad \blacklozenge = 2 \quad \star = 4$$

Every symbol is a whole number from 1 to 12. A number in front of a shape means multiply: 2 stars = 2 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.

$$\heartsuit + \heartsuit + \heartsuit = 15$$

$$\blacksquare + \bigcirc = 23$$

3 CRACK THESE

$$1. \quad 3\star - \bigcirc = \boxed{}$$

$$2. \quad 5\heartsuit - \blacklozenge = \boxed{}$$

CODE 1

$$3. \quad \bigcirc \times \heartsuit + \blacklozenge = \boxed{}$$

$$4. \quad \blacklozenge \times \star = \boxed{}$$

CODE 2

$$5. \quad 10\bigcirc + \blacksquare = \boxed{}$$

$$6. \quad \bigcirc \times \heartsuit - \blacklozenge = \boxed{}$$

CODE 3

$$7. \quad \blacksquare \times \star = \boxed{}$$

$$8. \quad 3\blacksquare - \star = \boxed{}$$

CODE 4

$$9. \quad \blacklozenge \times \bigcirc + \blacklozenge = \boxed{}$$

$$10. \quad \blacklozenge \times \blacksquare - \heartsuit = \boxed{}$$

4 THE VAULT CODE

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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 3 Crack the Code

The key

 ring = **11**
  square = **12** (hidden)
  diamond = **9**
  heart = **5** (hidden)
  pentagon = **2**
 star = **4**

Every symbol is a whole number from 1 to 12.

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|-----|--|------------|
| 1. | $3\star - \bigcirc$ (3 x star - ring) | 1 |
| 2. | $5\heartsuit - \blacklozenge$ (5 x heart - pentagon) | 23 |
| 3. | $\bigcirc \times \heartsuit + \blacklozenge$ (ring x heart + pentagon) | 57 |
| 4. | $\blacklozenge \times \star$ (pentagon x star) | 8 |
| 5. | $10\bigcirc + \blacksquare$ (10 x ring + square) | 122 |
| 6. | $\bigcirc \times \heartsuit - \blacklozenge$ (ring x heart - pentagon) | 53 |
| 7. | $\blacksquare \times \star$ (square x star) | 48 |
| 8. | $3\blacksquare - \star$ (3 x square - star) | 32 |
| 9. | $\blacklozenge \times \bigcirc + \blacklozenge$ (pentagon x ring + diamond) | 31 |
| 10. | $\blacklozenge \times \blacksquare - \heartsuit$ (pentagon x square - heart) | 19 |

Vault code: 3 8 3 2