



# The Obsidian Chest Codebreaker

Use your knowledge of redstone algebra to find the secret numerical value of each Minecraft block and unlock the ancient vault.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## 1 THE KEY

$$\text{Pentagon with ?} = \square \quad \text{Diamond} = 4 \quad \text{Star} = 19 \quad \text{Heart with ?} = \square \quad \text{Hexagon} = 15 \quad \text{Triangle with ?} = \square$$

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

$$\text{Heart} + \text{Hexagon} = 20$$

$$\text{Pentagon} - \text{Diamond} = 13$$

$$\text{Triangle} + \text{Star} = 31$$

## 3 CRACK THESE

$$1. (\text{Hexagon} + \text{Heart}) \times \text{Diamond} = \square$$

$$2. 3 \text{ Pentagon} + 2 \text{ Star} = \square$$

CODE 1

$$3. \text{Pentagon} \times \text{Heart} \times \text{Star} = \square$$

$$4. 10 \text{ Star} - \text{Triangle} = \square$$

CODE 2

$$5. \text{Hexagon} \times \text{Heart} - \text{Triangle} = \square$$

$$6. \text{Diamond} \times \text{Pentagon} \times \text{Triangle} = \square$$

CODE 3

$$7. \text{Heart} \times \text{Diamond} + \text{Star} \times \text{Triangle} = \square$$

$$8. \text{Diamond} \times (\text{Pentagon} - \text{Triangle}) = \square$$

CODE 4

$$9. 3 \text{ Heart} + 2 \text{ Pentagon} = \square$$

$$10. 10 \text{ Hexagon} - \text{Diamond} = \square$$

## 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 heavy obsidian chest.

# Answer Key

The Obsidian Chest Codebreaker · Grade 5 Crack the Code

## The key

 pentagon = **17** (hidden)    
  diamond = **4**    
  star = **19**    
  heart = **5** (hidden)    
  hexagon = **15**  
 triangle = **12** (hidden)

Every symbol is a whole number from 1 to 20.

- |     |                                                                                                               |             |
|-----|---------------------------------------------------------------------------------------------------------------|-------------|
| 1.  | $(\text{hexagon} + \text{heart}) \times \text{diamond}$ ((hexagon + heart) x diamond)                         | <b>80</b>   |
| 2.  | $3 \times \text{pentagon} + 2 \times \text{star}$ (3 x pentagon + 2 x star)                                   | <b>89</b>   |
| 3.  | $\text{pentagon} \times \text{heart} \times \text{star}$ (pentagon x heart x star)                            | <b>1615</b> |
| 4.  | $10 \times \text{star} - \text{triangle}$ (10 x star - triangle)                                              | <b>178</b>  |
| 5.  | $\text{hexagon} \times \text{heart} - \text{triangle}$ (hexagon x heart - triangle)                           | <b>63</b>   |
| 6.  | $\text{diamond} \times \text{pentagon} \times \text{triangle}$ (diamond x pentagon x triangle)                | <b>816</b>  |
| 7.  | $\text{heart} \times \text{diamond} + \text{star} \times \text{triangle}$ (heart x diamond + star x triangle) | <b>248</b>  |
| 8.  | $\text{diamond} \times (\text{pentagon} - \text{triangle})$ (diamond x (pentagon - triangle))                 | <b>20</b>   |
| 9.  | $3 \times \text{heart} + 2 \times \text{pentagon}$ (3 x heart + 2 x pentagon)                                 | <b>49</b>   |
| 10. | $10 \times \text{hexagon} - \text{diamond}$ (10 x hexagon - diamond)                                          | <b>146</b>  |

**Vault code: 9860**