



Space Pirate Redstone Cipher

Determine the value of each symbol to calculate the four-digit combination and unlock the galactic treasure chest.

Name: _____ Date: _____

1 THE KEY

$$\begin{array}{l} \diamondsuit = \square \quad \heartsuit = \square \quad \text{⚡} = 20 \quad \bullet = 19 \quad \triangle = \square \\ \text{☾} = \square \end{array}$$

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.

$$\text{☾} \times \text{⚡} = 180$$

$$\blacklozenge \times \bullet = 247$$

$$\blacktriangle \times \text{☾} - \blacklozenge = 122$$

$$\heartsuit^2 = 256$$

3 CRACK THESE

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

$$2. \heartsuit^3 - \blacklozenge = \square$$

CODE 1

$$3. \bullet^3 - \blacktriangle = \square$$

$$4. 2 \times (\blacktriangle + \text{⚡}) - \bullet = \square$$

CODE 2

$$5. \text{⚡}^2 - \blacktriangle^2 = \square$$

$$6. \bullet \times \heartsuit - \blacklozenge^2 = \square$$

CODE 3

$$7. 2 \times (\blacklozenge + \text{☾}) - \blacktriangle = \square$$

$$8. \blacklozenge^3 = \square$$

CODE 4

$$9. \heartsuit^2 - \blacktriangle^2 = \square$$

$$10. \blacktriangle \times \heartsuit \div \text{⚡} = \square$$

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 captain blockbeards galactic.

Answer Key

Space Pirate Redstone Cipher · Grade 6 Crack the Code

The key

 diamond = **13** (hidden)
  hexagon = **16** (hidden)
  lightning bolt = **20**
  circle = **19**
 triangle = **15** (hidden)
 moon = **9** (hidden)

Every symbol is a whole number from 1 to 20.

1. $\text{lightning bolt}^2 + \text{diamond}$ (lightning bolt² + diamond) **413**
2. $\text{hexagon}^3 - \text{diamond}$ (hexagon³ - diamond) **4083**
3. $\text{circle}^3 - \text{triangle}$ (circle³ - triangle) **6844**
4. $2 \times (\text{triangle} + \text{lightning bolt}) - \text{circle}$ (2 x (triangle + lightning bolt) - circle) **51**
5. $\text{lightning bolt}^2 - \text{triangle}^2$ (lightning bolt² - triangle²) **175**
6. $\text{circle} \times \text{hexagon} - \text{diamond}^2$ (circle x hexagon - diamond²) **135**
7. $2 \times (\text{diamond} + \text{moon}) - \text{triangle}$ (2 x (diamond + moon) - triangle) **29**
8. diamond^3 (diamond³) **2197**
9. $\text{hexagon}^2 - \text{triangle}^2$ (hexagon² - triangle²) **31**
10. $\text{triangle} \times \text{hexagon} \div \text{lightning bolt}$ (triangle x hexagon / lightning bolt) **12**

Vault code: 3 1 5 7