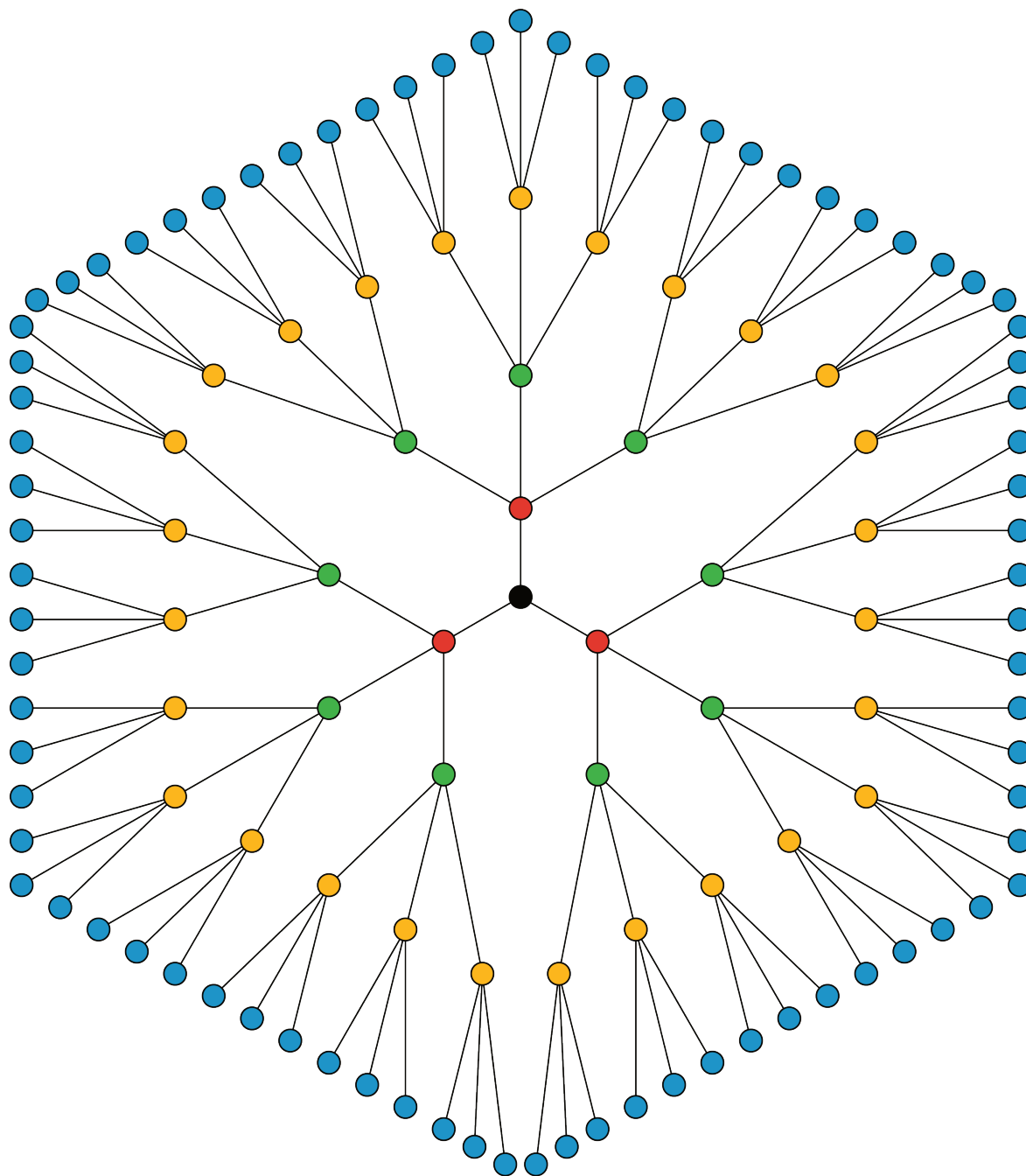


# Unit 6 Lesson 12: Meaning of Exponents

## 1 Notice and Wonder: Dots and Lines (Warm up)

### Student Task Statement

What do you notice? What do you wonder?





## 2 The Genie's Offer

### Student Task Statement

You find a brass bottle that looks really old. When you rub some dirt off of the bottle, a genie appears! The genie offers you a reward. You must choose one:

\$50,000 or a magical \$1 coin.

The coin will turn into two coins on the first day. The two coins will turn into four coins on the second day. The four coins will double to 8 coins on the third day. The genie explains the doubling will continue for 28 days.

1. The number of coins on the third day will be  $2 \cdot 2 \cdot 2$ . Write an equivalent expression using exponents.
2. What do  $2^5$  and  $2^6$  represent in this situation? Evaluate  $2^5$  and  $2^6$  without a calculator. Pause for discussion.
3. How many days would it take for the number of magical coins to exceed \$50,000?
4. Will the value of the magical coins exceed a million dollars within the 28 days? Explain or show your reasoning.

### 3 Make 81

#### Student Task Statement

1. Here are some expressions. All but one of them equals 16. Find the one that is *not* equal to 16 and explain how you know.

$2^3 \cdot 2$

$4^2$

$\frac{2^5}{2}$

$8^2$

2. Write three expressions containing exponents so that each expression equals 81.