Unit 5 Lesson 18: Scaling Two Dimensions

1 Tripling Statements (Warm up)

Student Task Statement

m, n, a, b, and c all represent positive integers. Consider these two equations: $m = a + b + c$ $n = abc$

1. Which of these statements are true? Select **all** that apply.
    a. If a is tripled, m is tripled.

    b. If a, b, and c are all tripled, then m is tripled.

    c. If a is tripled, n is tripled.

    d. If a, b, and c are all tripled, then n is tripled.

2. Create a true statement of your own about one of the equations.

2 A Square Base (Optional)

Student Task Statement

Clare sketches a rectangular prism with a height of 11 and a square base and labels the edges of the base s. She asks Han what he thinks will happen to the volume of the rectangular prism if she triples s.

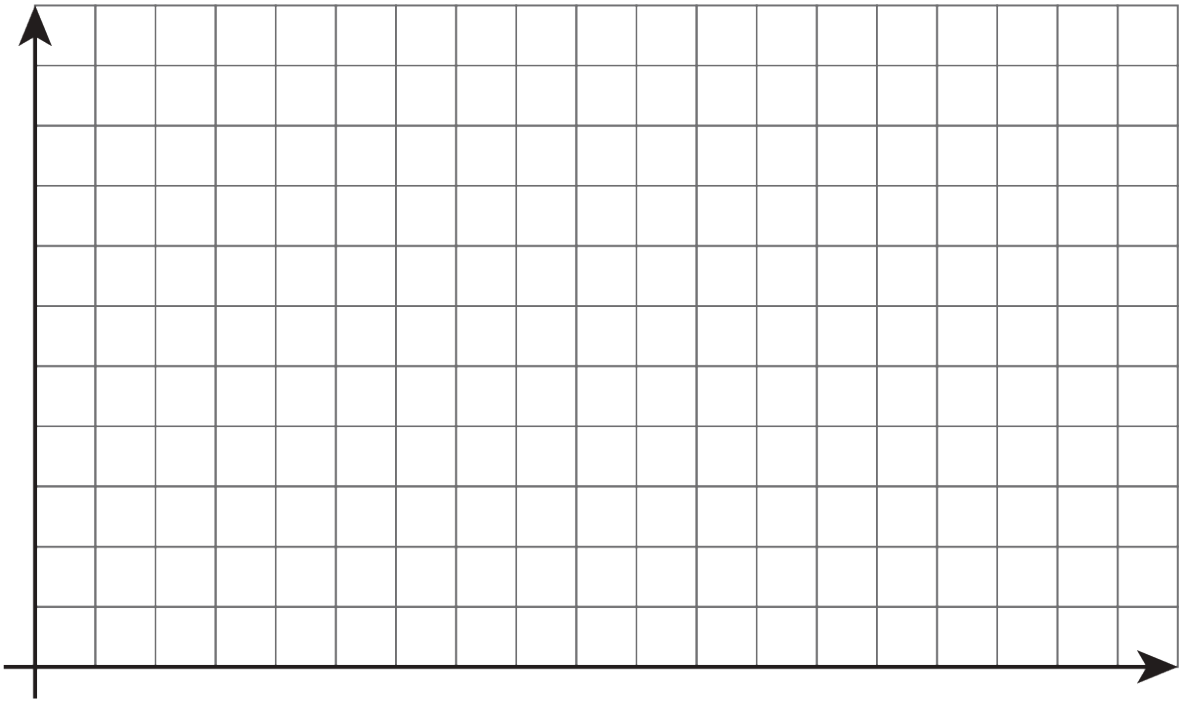
Han says the volume will be 9 times bigger. Is he right? Explain or show your reasoning.

3 Playing with Cones (Optional)

Student Task Statement

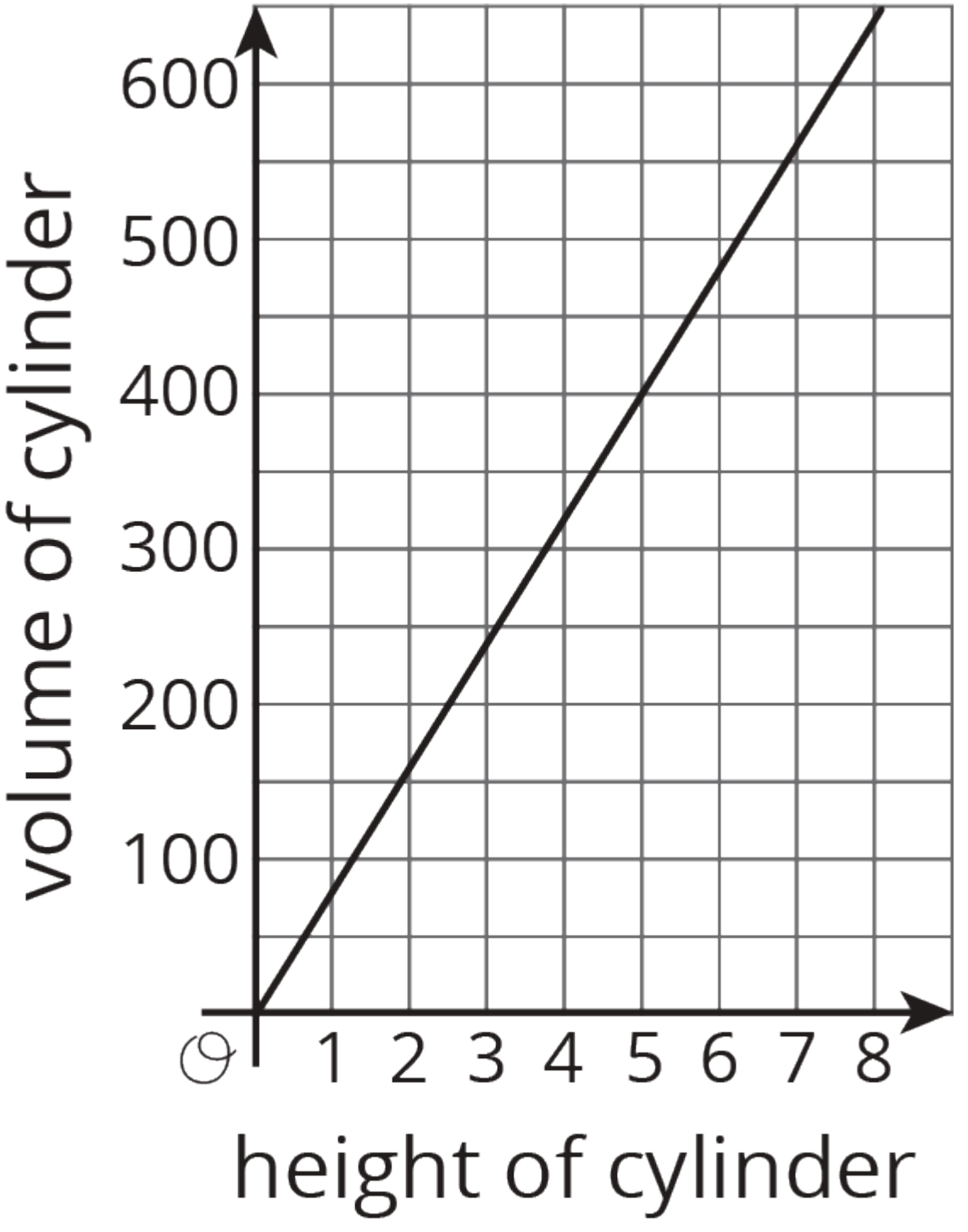
There are many cones with a height of 7 units. Let r represent the radius and V represent the volume of these cones.

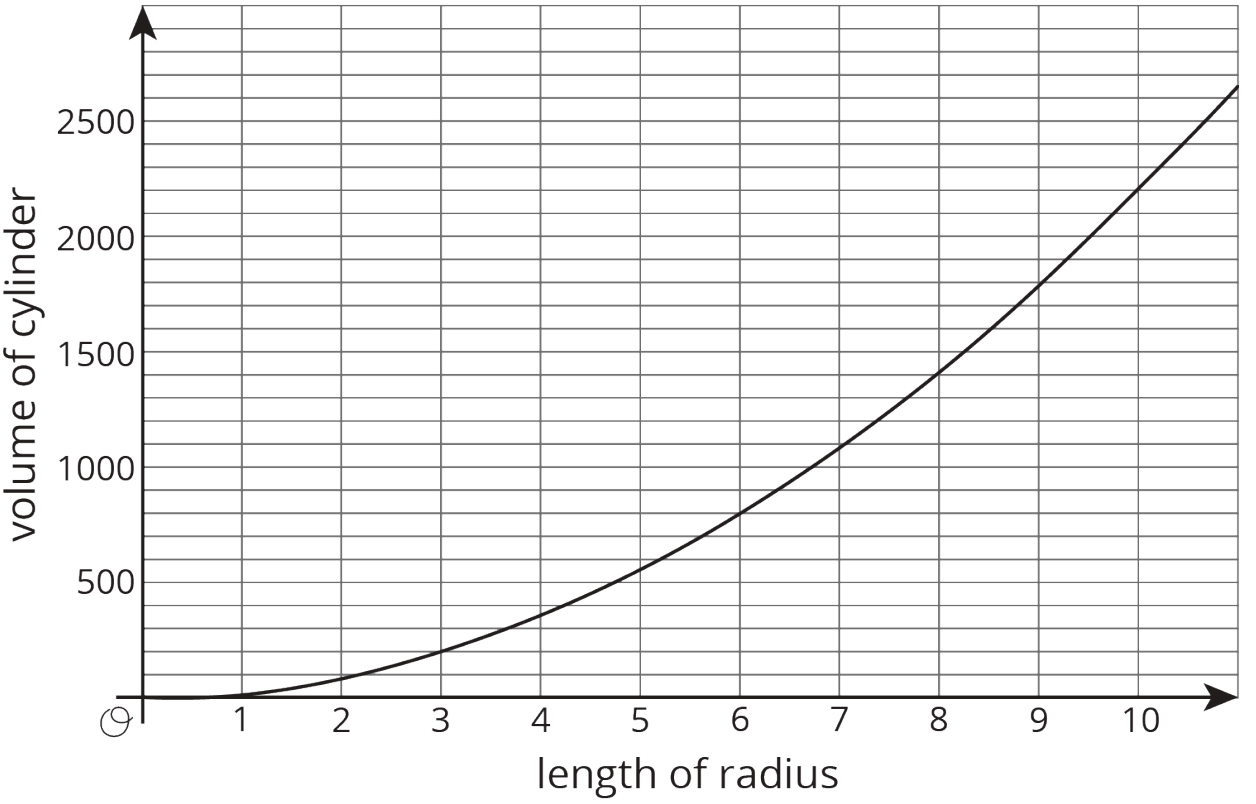
1. Write an equation that expresses the relationship between V and r. Use 3.14 as an approximation for π.
2. Predict what happens to the volume if you triple the value of r.
3. Graph this equation.



4. What happens to the volume if you triple r? Where do you see this in the graph? How can you see it algebraically?

Images for Activity Synthesis




volume of cylinder
2500
2000
1500
1000
500
O
1
2
3
4
5
6
7
8
9
10
length of radius