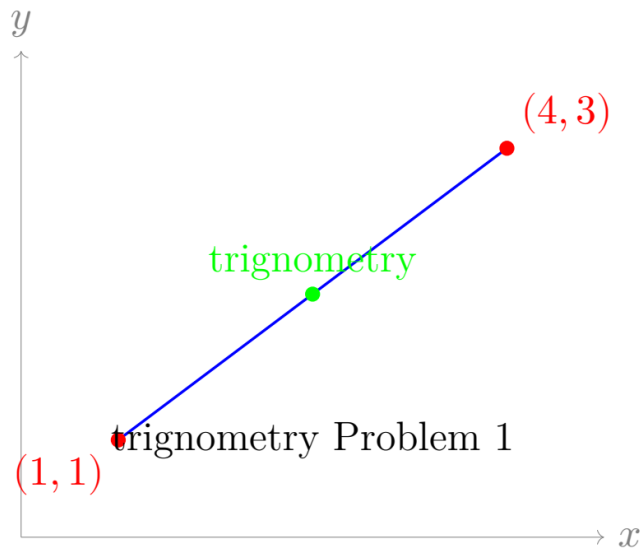


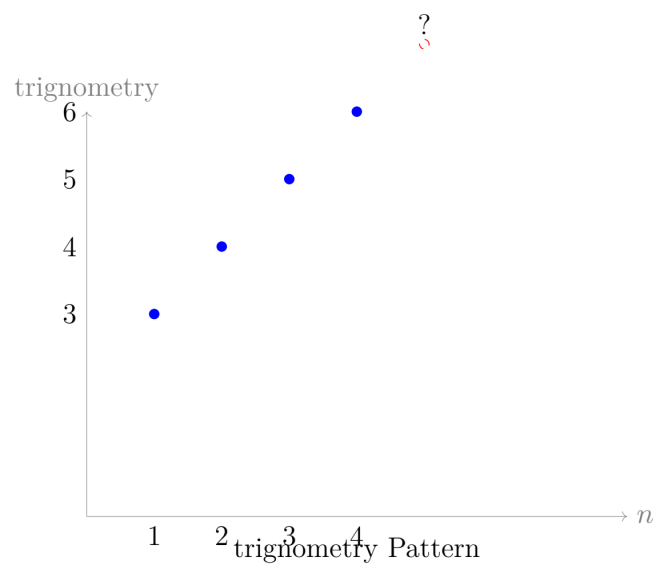
Pattern 7: Optimization Problems in trigonometry

Question 1: Calculate the value shown in the trigonometry diagram for the given parameters.



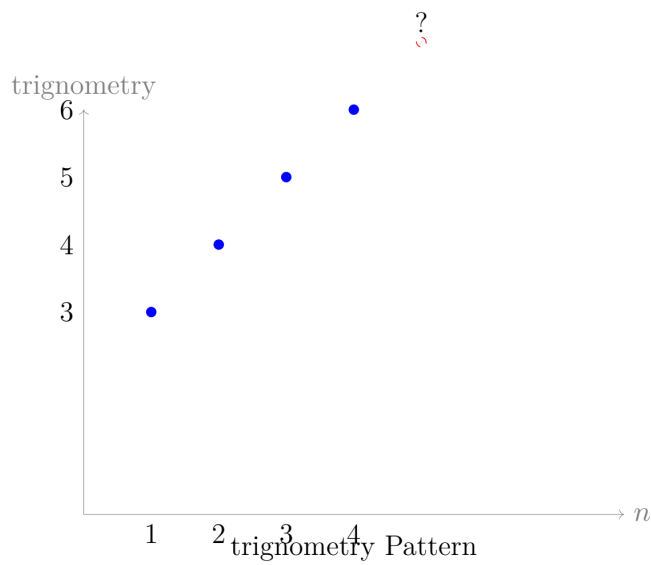
Answer: The calculated value is 5 based on the trigonometry formula shown.

Question 2: Compare the two quantities shown in the trigonometry diagram and determine which is larger.



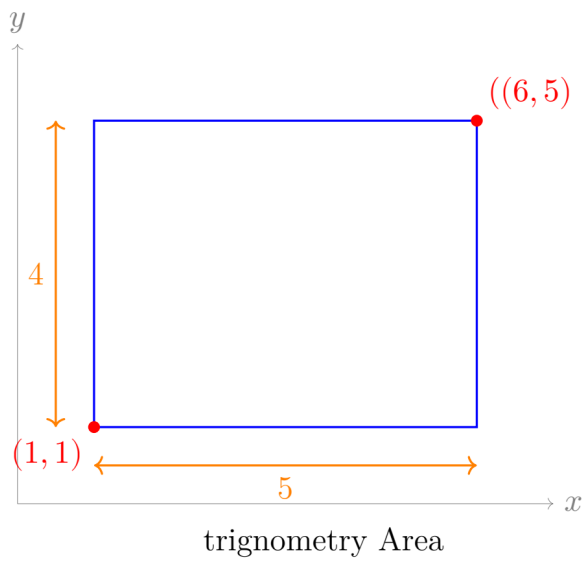
Answer: Quantity A is larger than Quantity B by 3 units in this trigonometry problem.

Question 3: Identify the pattern shown in the trigonometry diagram and predict the next value.



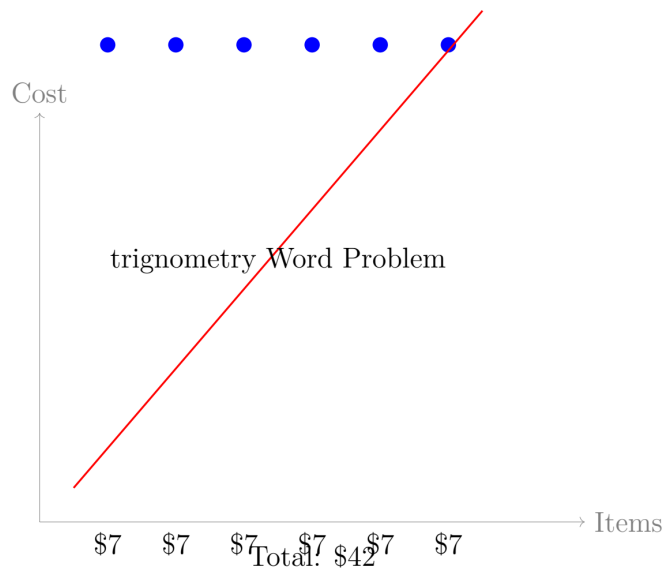
Answer: The pattern increases by 3 each step, so the next value is 8.

Question 4: Find the area of the trigonometry shape shown in the diagram.



Answer: The area is 30 square units for this trigonometry shape.

Question 5: A trigonometry scenario shows 6 items. If each item costs \$7, what is the total cost?



Answer: $Total\ cost = 6 \times \$7 = \42

Question 6: What is the maximum value shown in the trigonometry graph?

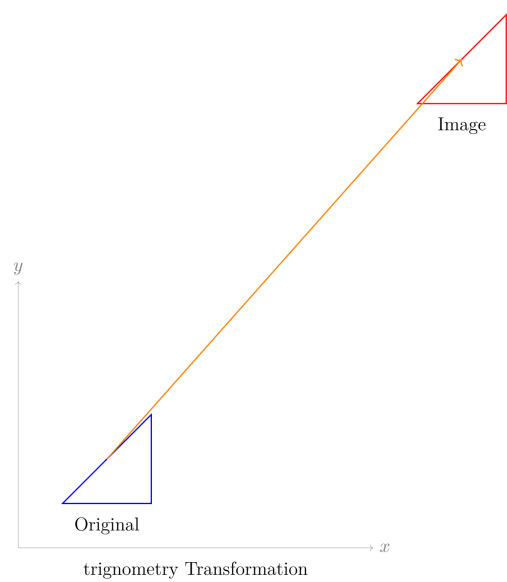


Answer: The maximum value is 13 occurring at $x = 6$.

Question 7: In the trigonometry proportion shown, if the first ratio equals 8:7, find the missing value.

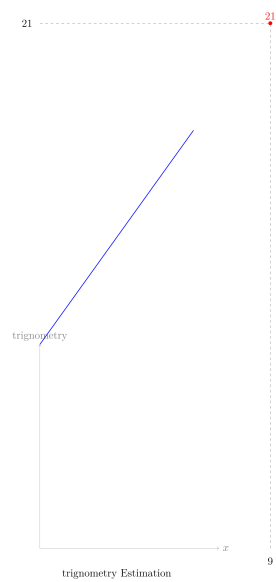
Answer: *The missing value is $10.285714285714286 \approx 10.3$*

Question 8: The trigonometry shape is transformed as shown. What type of transformation occurred?



Answer: This is a translation by (8, 9) units in the trigonometry context.

Question 9: Estimate the value shown in the trigonometry diagram to the nearest whole number.



Answer: The estimated value is approximately 21 for this trigonometry problem.

Question 10: Solve the multi-step trigonometry problem shown in the diagram.

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Answer: The solution involves 10 steps, resulting in 19 as the final answer.