

PYTHAGOREAN PATHS

DIFFICULTY LEVEL:

★ – ★ ★ ★ ★ ★

In a **Pythagorean Path** puzzle, the goal is to connect all of the dots on a grid to create one continuous path.

The segments that form the path must match the lengths given in order.

Segments will never overlap each other, and a segment from one dot to another will never pass through a third dot along the way.

Use the Pythagorean theorem to find the distances between pairs of dots on the grid.



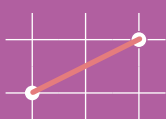
The path segments have lengths of $\sqrt{5}$, $\sqrt{13}$, 2, and $\sqrt{17}$.

A segment of length $\sqrt{5}$ connects dots at opposite corners of a 1x2 rectangle.

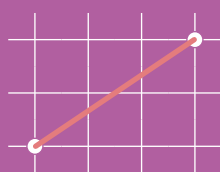
A segment of length $\sqrt{13}$ connects dots at opposite corners of a 2x3 rectangle.

A segment of length $\sqrt{17}$ connects dots at opposite corners of a 1x4 rectangle.

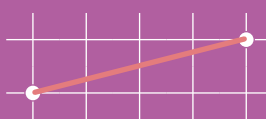
$$\sqrt{1^2+2^2}=\sqrt{5}$$



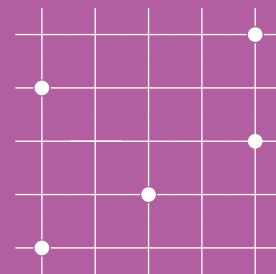
$$\sqrt{2^2+3^2}=\sqrt{13}$$



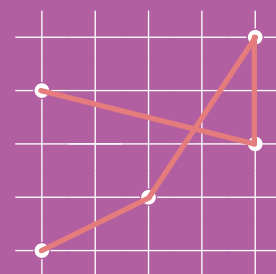
$$\sqrt{1^2+4^2}=\sqrt{17}$$



$\sqrt{5}$ $\sqrt{13}$ 2 $\sqrt{17}$



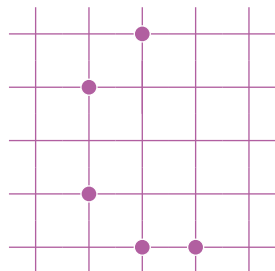
$\sqrt{5}$ $\sqrt{13}$ 2 $\sqrt{17}$



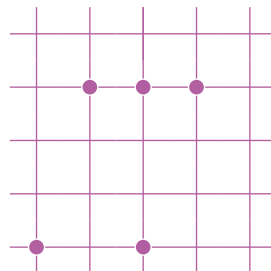
We connect dots on the grid so that the four segments of the path match the lengths given in order.

Starting in the bottom-left corner, we have segments of length $\sqrt{5}$, $\sqrt{13}$, 2, and $\sqrt{17}$.

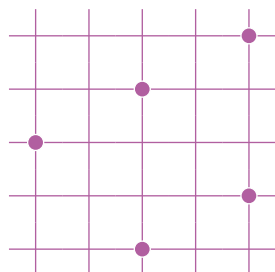
1. $1 \quad \sqrt{2} \quad 2 \quad \sqrt{2}$



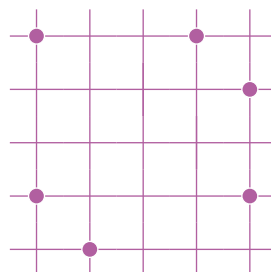
2. $1 \quad 3 \quad 2 \quad \sqrt{10}$



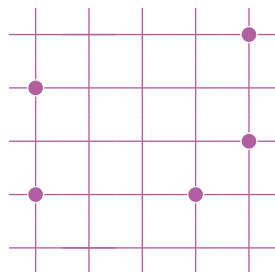
3. $\sqrt{5} \quad \sqrt{5} \quad \sqrt{8} \quad \sqrt{5}$



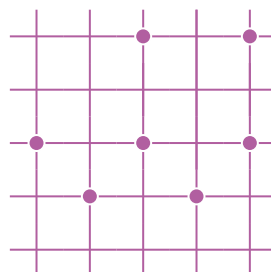
4. $3 \quad \sqrt{2} \quad \sqrt{10} \quad \sqrt{10} \quad \sqrt{2}$



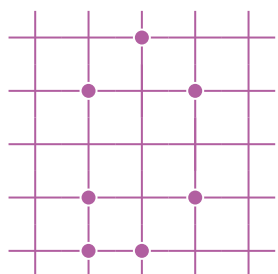
5. $\sqrt{10} \quad 3 \quad \sqrt{17} \quad \sqrt{17}$



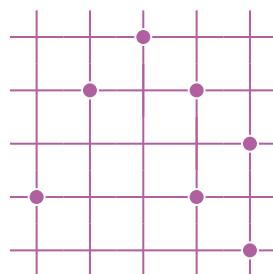
6. $\sqrt{2} \quad \sqrt{2} \quad 2 \quad 2 \quad 2 \quad \sqrt{2}$



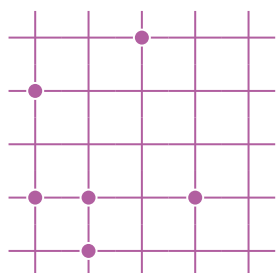
7. $\sqrt{2} \sqrt{2} \sqrt{5} \sqrt{13} \sqrt{2} \sqrt{2}$



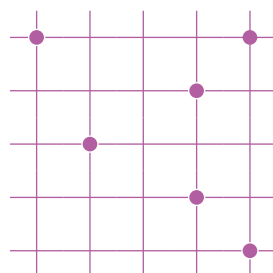
8. $\sqrt{2} \sqrt{17} \sqrt{17} \sqrt{2} 2 \sqrt{2}$



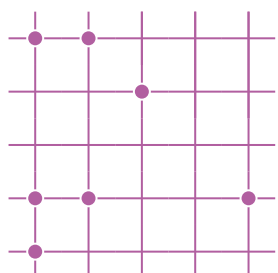
9. $\sqrt{5} \sqrt{10} \sqrt{5} \sqrt{5} 1$



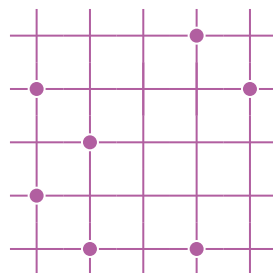
10. $\sqrt{10} \sqrt{10} \sqrt{5} \sqrt{5} \sqrt{10}$



11. $1 \sqrt{8} \sqrt{8} 3 3 1$

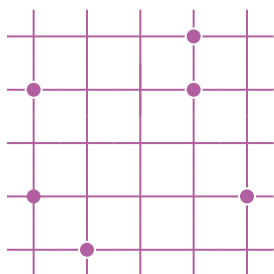


12. $\sqrt{2} \sqrt{8} \sqrt{2} 2 \sqrt{2} 2$



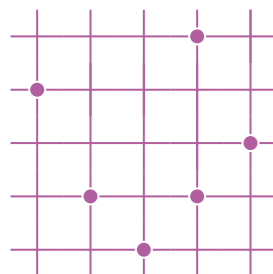
13. $\sqrt{2}$ $\sqrt{10}$ $\sqrt{10}$ $\sqrt{10}$ 3

H



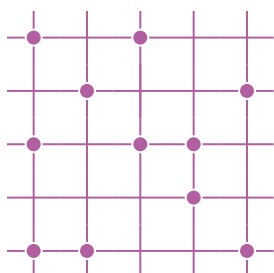
14. $\sqrt{13}$ $\sqrt{2}$ $\sqrt{13}$ $\sqrt{13}$ $\sqrt{2}$

H



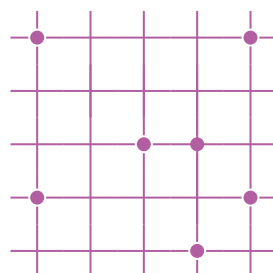
15. $\sqrt{2}$ 3 3 3 1 2 2 2 2 1

H



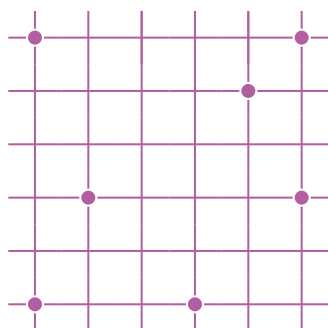
16. 5 4 3 $\sqrt{2}$ 1 $\sqrt{5}$

H



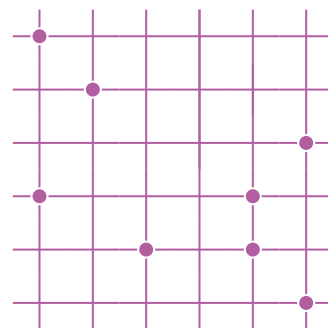
17. $\sqrt{5}$ 3 $\sqrt{34}$ $\sqrt{34}$ $\sqrt{5}$ $\sqrt{2}$

H



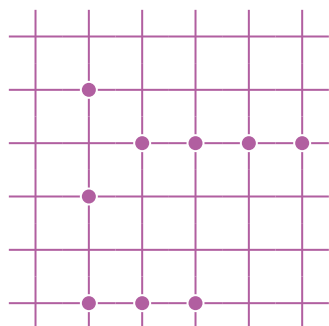
18. $\sqrt{5}$ $\sqrt{2}$ $\sqrt{17}$ $\sqrt{10}$ 2 $\sqrt{17}$ 3

H



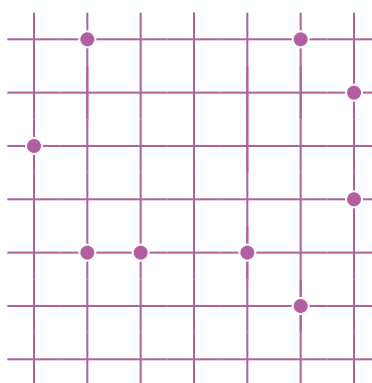
19. $3 \sqrt{10} \sqrt{10} \sqrt{18} \sqrt{10} 2 \sqrt{5} \sqrt{18}$

H



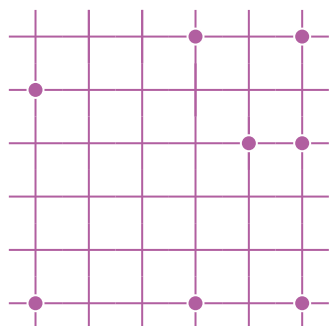
20. $5 5 5 \sqrt{5} \sqrt{5} 5 \sqrt{5} \sqrt{5}$

H



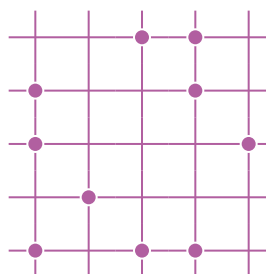
21. $2 5 \sqrt{10} \sqrt{34} \sqrt{34} 2 \sqrt{5}$

H



22. $2 \sqrt{10} \sqrt{10} 1 \sqrt{5} \sqrt{10} \sqrt{10} 1 \sqrt{10}$

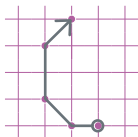
H



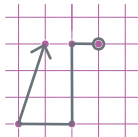
PYTHAGOREAN PATHS SOLUTIONS

Page 143

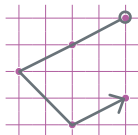
1. $1 \sqrt{2} 2 \sqrt{2}$



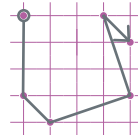
2. $1 3 2 \sqrt{10}$



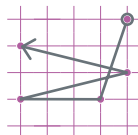
3. $\sqrt{5} \sqrt{5} \sqrt{8} \sqrt{5}$



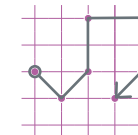
4. $3 \sqrt{2} \sqrt{10} \sqrt{10} \sqrt{2}$



5. $\sqrt{10} 3 \sqrt{17} \sqrt{17}$

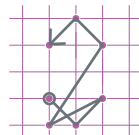


6. $\sqrt{2} \sqrt{2} 2 2 2 \sqrt{2}$

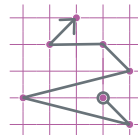


Page 144

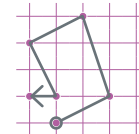
7. $\sqrt{2} \sqrt{2} \sqrt{5} \sqrt{13} \sqrt{2} \sqrt{2}$



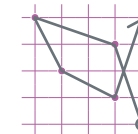
8. $\sqrt{2} \sqrt{17} \sqrt{17} \sqrt{2} 2 \sqrt{2}$



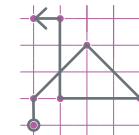
9. $\sqrt{5} \sqrt{10} \sqrt{5} \sqrt{5} 1$



10. $\sqrt{10} \sqrt{10} \sqrt{5} \sqrt{5} \sqrt{10}$



11. $1 \sqrt{8} \sqrt{8} 3 3 1$

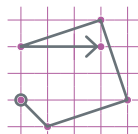


12. $\sqrt{2} \sqrt{8} \sqrt{2} 2 \sqrt{2} 2$

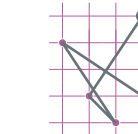


Page 145

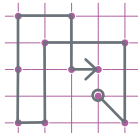
13. $\sqrt{2} \sqrt{10} \sqrt{10} \sqrt{10} 3$



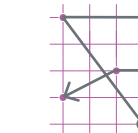
14. $\sqrt{13} \sqrt{2} \sqrt{13} \sqrt{13} \sqrt{2}$



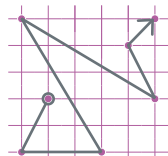
15. $\sqrt{2} 3 3 3 1 2 2 2 1$



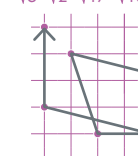
16. $5 4 3 \sqrt{2} 1 \sqrt{5}$



17. $\sqrt{5} 3 \sqrt{34} \sqrt{34} \sqrt{5} \sqrt{2}$



18. $\sqrt{5} \sqrt{2} \sqrt{17} \sqrt{10} 2 \sqrt{17} 3$

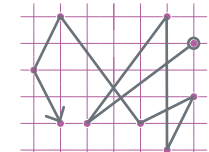


Page 146

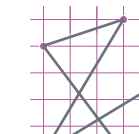
19. $3 \sqrt{10} \sqrt{10} \sqrt{18} \sqrt{10} 2 \sqrt{5} \sqrt{18}$



20. $5 5 5 \sqrt{5} \sqrt{5} 5 \sqrt{5} \sqrt{5}$



21. $2 5 \sqrt{10} \sqrt{34} \sqrt{34} 2 \sqrt{5}$



22. $2 \sqrt{10} \sqrt{10} 1 \sqrt{5} \sqrt{10} \sqrt{10} 1 \sqrt{10}$

