

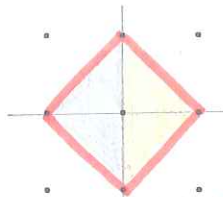
2.1 : Looking for Squares Notes

Focus Question: " How many different square areas are possible to draw using the dots on a dot grid as vertices? Why are some square areas not possible?"

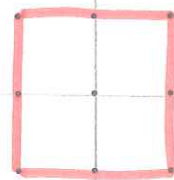
(A)



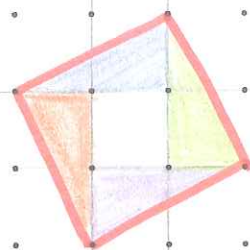
1 unit²



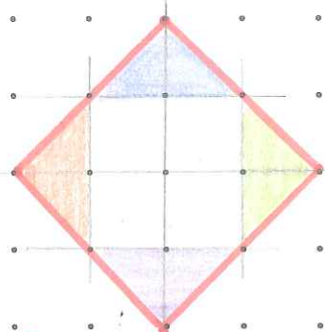
2 units²



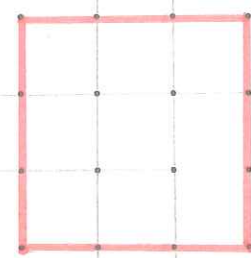
4 units²



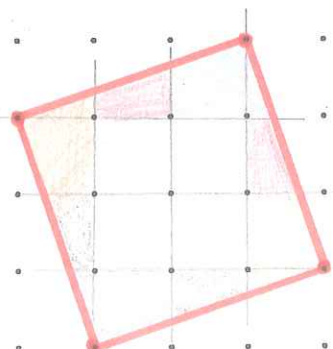
5 units²



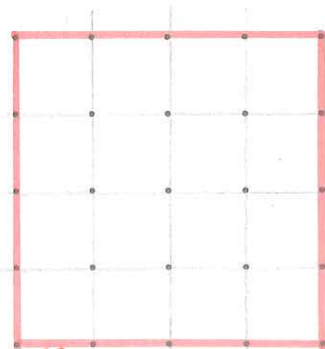
8 units²



9 units²



10 units²



16 units²

(B) From smallest to largest:

1 unit² : whole number side lengths
2 units² : decimal side lengths
4 units² : whole number side lengths
5 units² : decimal side lengths
8 units² : decimal side lengths
9 units² : whole number side lengths
10 units² : decimal side lengths
16 units² : whole number side lengths

Side lengths for each:

$$1 \text{ unit}^2 \rightarrow 1 \times 1 = 1$$

$$2 \text{ unit}^2 \rightarrow 1.41 \times 1.41 \approx 2$$

$$4 \text{ units}^2 \rightarrow 2 \times 2 = 4$$

$$5 \text{ units}^2 \rightarrow 2.236 \times 2.236 \approx 5$$

$$8 \text{ units}^2 \rightarrow 2.83 \times 2.83 \approx 8$$

$$9 \text{ units}^2 \rightarrow 3 \times 3 = 9$$

$$10 \text{ units}^2 \rightarrow 3.16 \times 3.16 \approx 10$$

$$16 \text{ units}^2 \rightarrow 4 \times 4 = 16$$