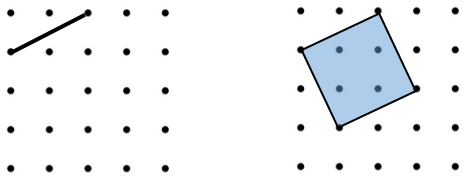
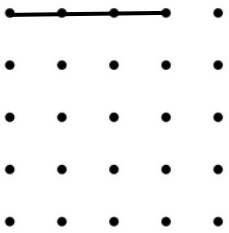
Unit 2 Day 3 – Side Length Squares Classwork Name: _____

You can use a square to find the length of a segment connecting dots on a grid. For example, to find the length of the segment on the left. draw a square with the segment as a side. The square has an area of 5 square units, so the segment has length $\sqrt{5}$ units.



Find the length of the given line segments. Label each segment with its length. Use the $\sqrt{\ }$ symbol to express lengths that are not whole numbers. Hint: You may need to draw squares that extend beyond the grids.

1.



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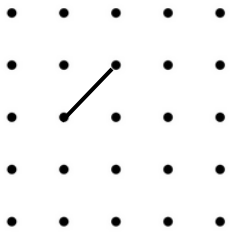

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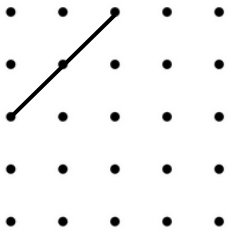

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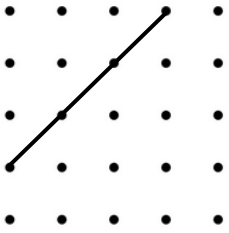

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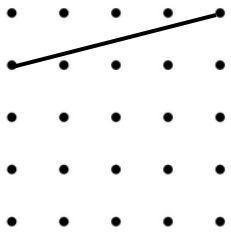

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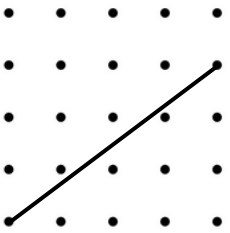


7. Without using a ruler, how could you decide if the segment in #4 is longer than the segment in #5? Explain your reasoning.

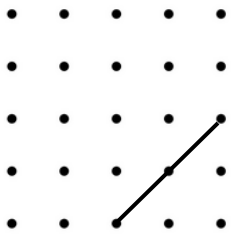
8. List the areas of the squares in increasing order:

9. List the side lengths (exact) in increasing order:

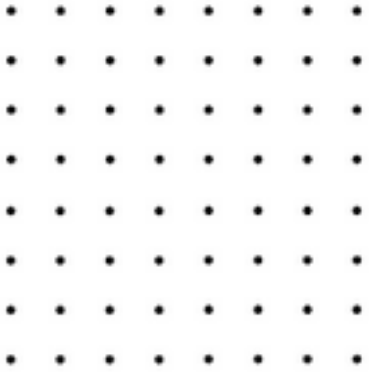
10. Estimate each non-whole number length to one decimal place (without a calculator).

11. Emma says the length of the segment at the left below is $\sqrt{8}$ units. Abby says it is $2\sqrt{2}$ units.

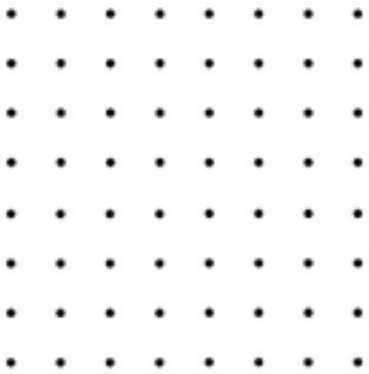
Are both students correct? Explain.



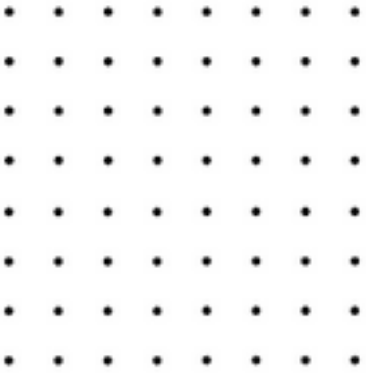
12. Show on the dot grid at the right how $\sqrt{32} = 4\sqrt{2}$.



13. Use the grid to find $\sqrt{2} + 5\sqrt{2}$.



14. Use the grid to find $7\sqrt{2} - 4\sqrt{2}$.



Simplify:

15. $\sqrt{18}$

16. $\sqrt{50}$

17. $\sqrt{45}$

18. $\sqrt{200}$

19. $\sqrt{88}$

20. $\sqrt{40}$

21. $6\sqrt{5} + 13\sqrt{5}$

22. $\sqrt{24} - 4\sqrt{2} + 9\sqrt{6}$

23. $\sqrt{3}(5 + 10\sqrt{3})$

Solve:

24. $x^2 = 289$

25. $m^2 = 300$

26. $g^2 = 98$