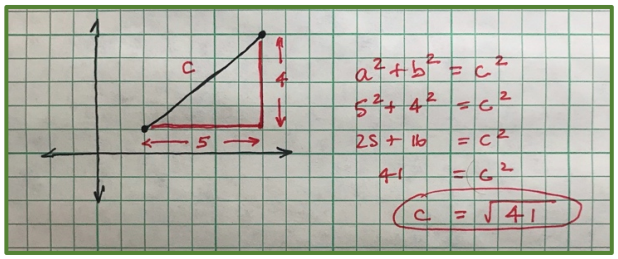
SRHS - Math I

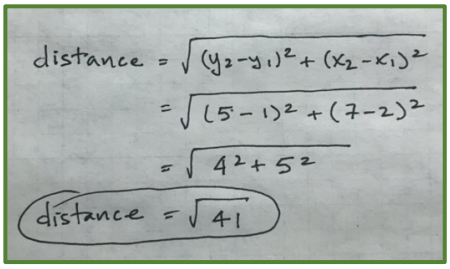
Distance Between Two Points - Notes

There are two primary strategies for finding the distance between two points. They are mathematically equivalent methods, but one is more visual and the other is more algebraic...

- The more visual strategy...
  - To use this strategy, you need to graph the given points and connect them to form the hypotenuse of a right triangle, draw horizonal and vertical segments from the end-points of the hypotenuse to make the legs of a right triangle, find the vertical and horizontal distances for the lengths of the legs of the triangle and then use the Pythagorean Theorem [for a right triangle with legs a and b, and hypotenuse c, $a^2 + b^2 = c^2$].
  - For example, to find the distance between the points (2, 1) and (7, 5) using this method...



- The more algebraic strategy...
  - To use this strategy, you need to know the Distance Formula (which is the Pythagorean Theorem formula re-written) and substitute the values from the given points.
  - The Distance Formula is: $d = \sqrt{(y_2 - y_1)^2 + (x_2 - x_1)^2}$
  - For example, to find the distance between the points (2, 1) and (7, 5) using this method...



- Either strategy you use, you will often end up with an answer that is not an integer. In the above examples the answer was $\sqrt{41}$. If you try to evaluate that on a calculator you will get a decimal that (theoretically) goes on forever. So, $\sqrt{41}$ is an *exact* answer and we usually want to leave our result that way, unless we are asked for an *approximate* answer where we round off our result to a given number of decimal places.

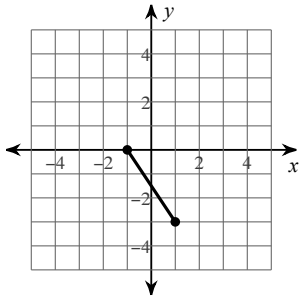
2020 - Review #8 Name_____

SRHS Math 1

Date_____ Period____

Find the distance between each pair of points.

1)



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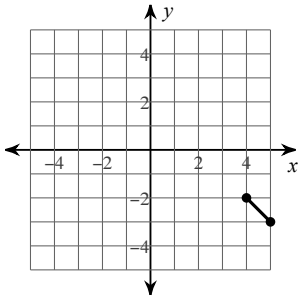
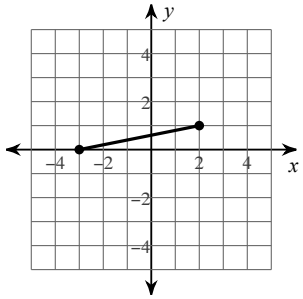


3)



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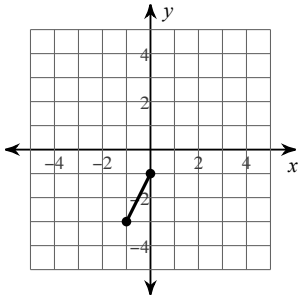

5) $(7, -3), (5, 4)$

6) $(-2, 0), (-5, -7)$

7) $(1, 2), (5, 7)$

8) $(2, 3), (5, 7)$

9) $(3, 0), (0, -8)$

10) $(1, 1), (2, -4)$