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## Review on Systems of equations

1. Do the equations $x+y=-2$ and $3 x+3 y=-6$ define the same line? Explain.
2. Jake and Josh run at constant speeds. Jake can run 1 mile in 8 minutes and josh can run 3 miles in 33 minutes. Jake started running 10 minutes after Josh. Assuming they run the same path, when will Jake catch up to Josh?
a. Write two equations for the speed.
b. Y is distance travel, x is minutes running
c. Graph the two equations

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3. Sketch the graphs of the linear systems on the plane
a. $y=\frac{1}{3} x+1 \quad$ And $\quad y=-3 x+11$

b. What is the coordinate pair of where the two lines intersect?
4. Does the system below have a solution? Explain without graphing
a. $2 x+5 y=9$ and $-4 x-10 y=4$
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5. How many solutions does the following systems of equations have? Explain.
a. $y=\frac{3}{7} x-8$ and $3 x-7 y=1$
6. Use elimination to solve the following systems of equations
a. $9 x+2 y=9$ and $-3 x+y=2$
7. Use substitution to solve the following systems of equations
a. $y=\frac{4}{3} x-9 \quad$ and $y-x=3$
8. A math test is worth 100 points. There is a total of 26 questions. There are spelling word questions that are 2 points each and vocabulary word questions worth 5 points each. How many of each type of question are there?
9. Find the missing side of the triangle.

