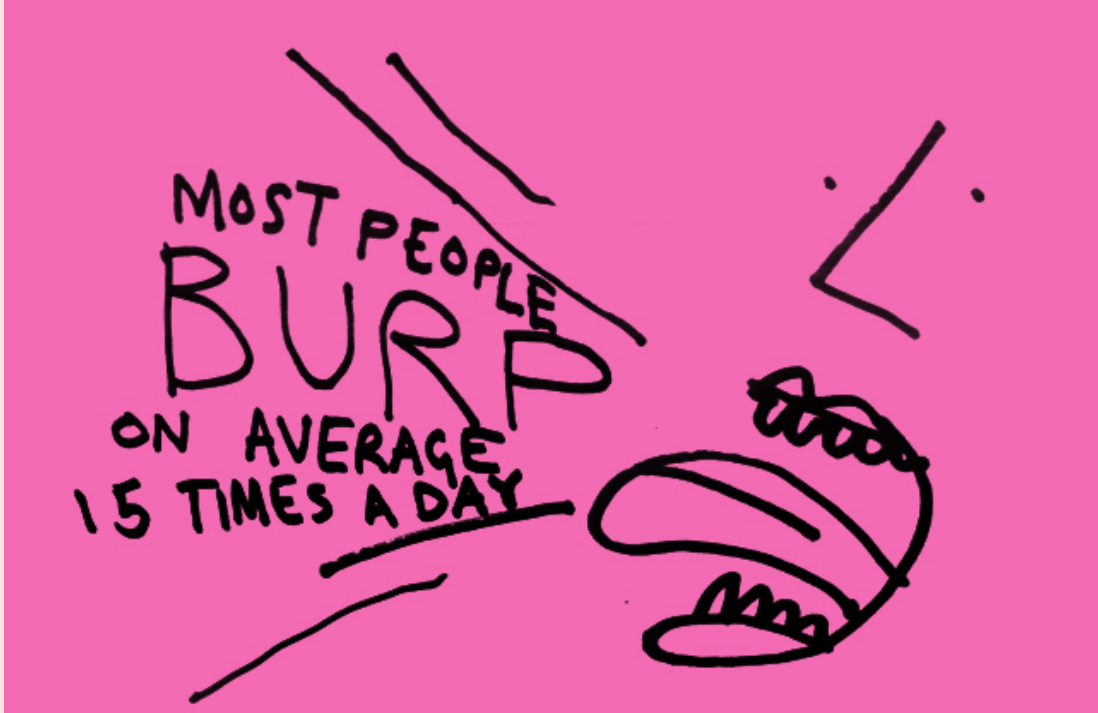


3.7 Perpendicular Lines



Jun 12-7:17 PM



Algebra Review Problem: Miss Brinkman has done an experiment. She originally started with 200mg in her pea tree dish sample, and she noticed that after 3 hours the sample had doubled. If this trend continues, how much will be in the sample after a day? ²⁴

$$y = a(b)^x$$

a = starting amount

b = growth factor

$b > 1$ growth
 $0 < b < 1$ decay

$$y = 200(2)^{x/3}$$

$$y = 200(2)^{24/3}$$

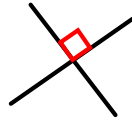
$$y = 200(2)^8$$

$$y = 51,200 \text{ mg}$$

Sep 24-6:29 AM

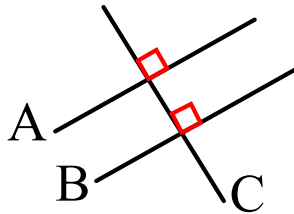
DEFINITION OF PERPENDICULAR

2 lines are **PERPENDICULAR** if and only if the lines form a 90°



TWO PERPENDICULARS THEOREM

If 2 lines A and B are each perpendicular to the same line C, then A and B are parallel

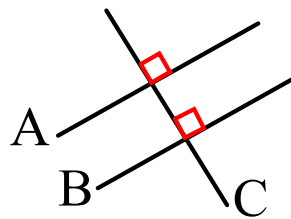


Oct 19-3:42 PM

PERPENDICULAR TO PARALLELS THEOREM

If a line is perpendicular to one of two parallel lines then it is also perpendicular to the other.

Here, A is perpendicular to C.
Also, A and B are parallel
Therefore, C is perpendicular to B



if $a \parallel b$, and
 $a \perp c$, then
 $b \perp c$
 \perp

PERPENDICULAR LINES AND SLOPE THEOREM

Two nonvertical lines are perpendicular if and only if the product of the slopes is -1

Ex: Slope of 2 and $-1/2$

\perp lines have opp. reciprocal slopes

Oct 19-3:47 PM

1. Define Perpendicular Lines:

Lines that form 90° angles. We use the symbols

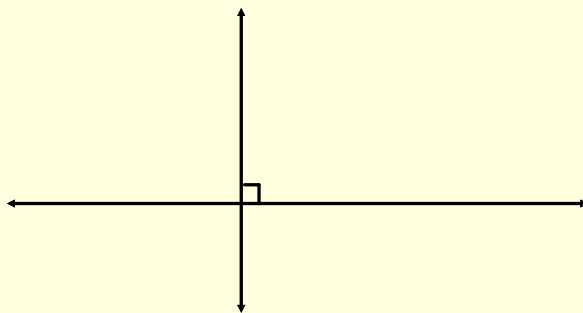


Important: Make sure you take this note!!!!

Angles are **never** perpendicular, only lines.

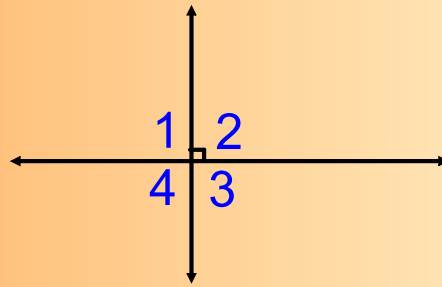
Jun 12-7:27 PM

3. Draw a picture of two lines that are perpendicular. Make sure you put in the appropriate tick marks.



Jun 12-7:27 PM

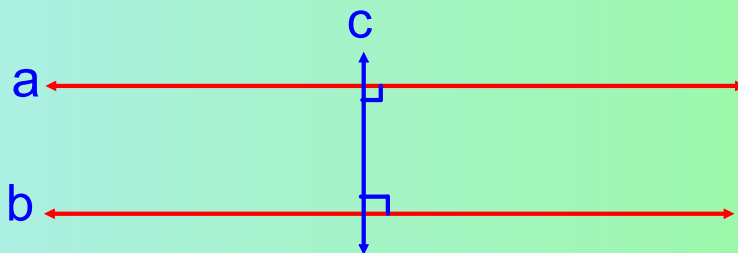
3. Draw two lines that are perpendicular and identify there 4 angles as 1,2,3,&4 in clockwise manner.



- 4. True or False: Angles 1 & 2 are complimentary.
- 5. True or False: Angles 1 & 2 are supplementary.
- 6. True or False: Angles 1 & 2 form a linear pair.

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Draw 2 lines, a & b, that are perpendicular to a third line, c. Put in the appropriate tick marks.

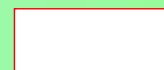


7. What is true about lines a & b? Why is this true?

Lines a & b are parallel to each other.

2 lines perpendicular to the same line are parallel.

8. If lines a & b, from the previous drawing are parallel, what is true about their slopes? equal



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10. Lines that are perpendicular have slopes that are the **opposite reciprocal** to each other.

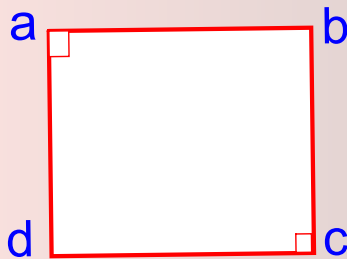
12. If line x has a slope of $\frac{2}{3}$, and line y is parallel to line x, then the slope of line y is $\frac{2}{3}$

same

13. If line x has a slope of $\frac{2}{3}$, and line y is perpendicular to line x, then the slope of line y is $\frac{3}{2}$

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Draw a square and label it abcd



Because AB \perp BC

What is the slope of AB * BC? **-1**

If ab is a horizontal line, what is its slope? **0**

If bc is a vertical line, what is its slope? **undefined**

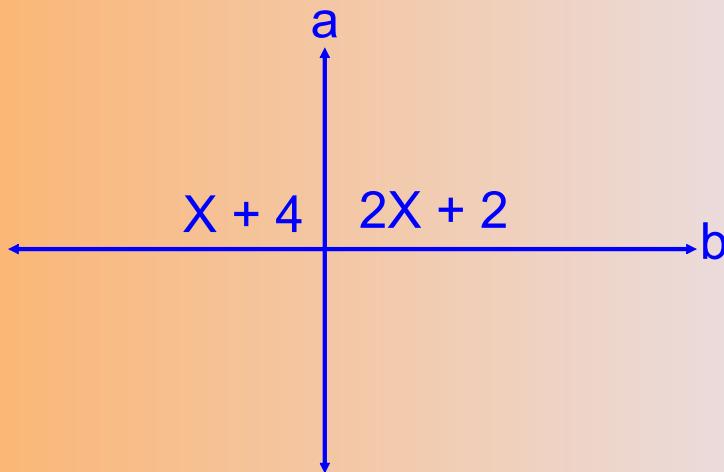
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Where almost done, hang in there!



Jun 3-12:58 PM

15. Given the drawing below with angle measures, Is line a perpendicular to line b? SUPPORT YOUR ANSWER!!



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