Name: Key 2018-2019 Period: _____ Date: _____ ID: A

Algebra Prep-Algebra 1 5.4-5.7 Study Guide

1. Write the equation of the line passing through (2, –7), (2, 0), and (2, 5).

all the x's are 2!
so it must be a vertical line

$x = 2$

2. Write the equation of the horizontal line passing through the point (4, 7).

$y = 7$

3. Write the standard form of the equation of the line with slope –1 passing through the point $(-4, -6)$.

$y = mx + b$ ← start here and then convert.

$-6 = -1(-4) + b$

$-6 = 4 + b$

$-4 \quad -4$

$-10 = b$

$Ax + By = C$

$y = -1x - 10$

$+x \quad +x$

now convert

$x + y = -10$

4. The clearing house has resistors that sell for $3.50 each and circuit boards that sell for $2.25 each. Write an equation that represents how many of each type of electronic equipment can be bought with $7.

$3.5x + 2.25y = 7$

x = # of resistors

y = # of circuit boards

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5. Write an equation of the line that is parallel to $y = 2x - 5$ and passes through $(-4, 2)$.

$m_{\parallel} = 2$

x y

$y = mx + b$

$2 = 2(-4) + b$

$2 = -8 + b$

$+8 \quad +8$

$10 = b$

$\boxed{y = 2x + 10}$

6. Write an equation of a line that is perpendicular to $y = -5x + 2$ and passes through (10, 8).

$m_{\perp} = \frac{1}{5}$

x y

$y = mx + b$

$8 = \frac{1}{5}(10) + b$

$8 = 2 + b$

$-2 \quad -2$

$6 = b$

$\boxed{y = \frac{1}{5}x + 6}$

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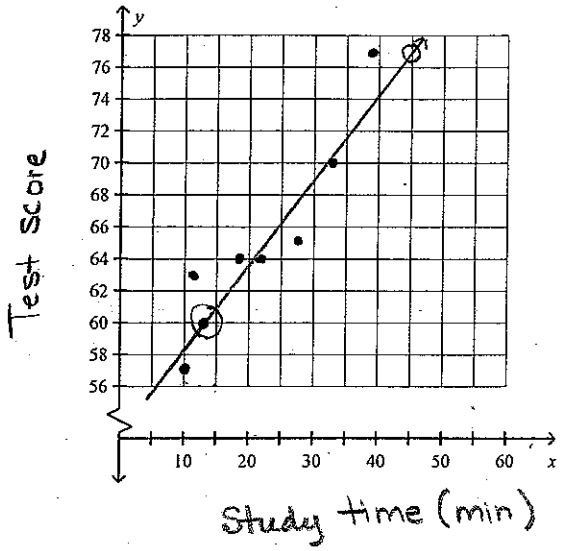
7. The table shows the study times and test scores for a number of students. Draw a scatter plot of score versus time. Don't forget to label your axes.

Study time (min)	10	12	14	19	22	27	33	39
Test score	57	63	60	64	64	65	70	77



(14,60)
(45,77)

Draw a line of fit through the data.
Write an equation for your line of fit. Please use the slope formula to calculate the slope.

$m = \frac{77-60}{45-14} = \frac{17}{31}$

$y = mx+b$
$60 = \frac{17}{31}(14)+b$
$60 = \frac{238}{31}+b$
$\frac{1860}{31} - \frac{238}{31} = b$
$\frac{1622}{31} = b$

(14,60)

$y = \frac{17}{31}x + \frac{1622}{31}$

approximation

$y = .55x + 52.32$

Line of fit:

If a student studied for 50 minutes, what score does your model predict the student would get on the test? (Show work and give a sentence!) Is this interpolation or extrapolation?

$y = \frac{17}{31}(50) + \frac{1622}{31}$

$y = \frac{850}{31} + \frac{1622}{31}$

$y = \frac{2472}{31} \approx 79.74$

The model predicts that a student that studied for 50 minutes would get a 79 or 80 on the test.
This is extrapolation because $x = 50$ is outside of the known x values.