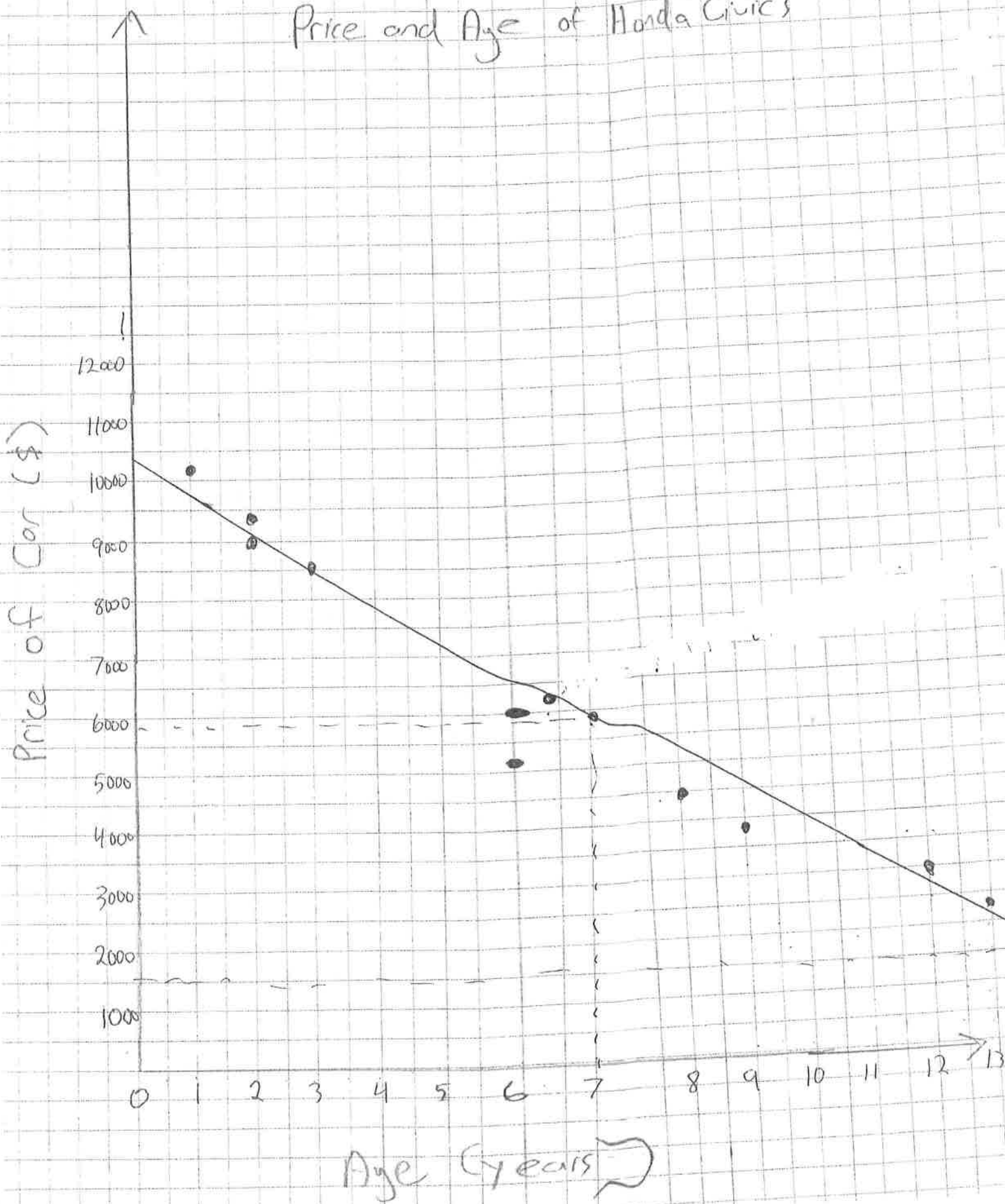Price and Age of Honda Civics

Price of Car ($)

Age (years)

Unit 2 Test: Relationships & Equations

Knowledge/Understanding: Questions #2 – 6
Application: Question #1, 7, 8
TIPS: Question #9
Communication: Question #1

67

1. The table below shows the price of several used *Honda Civics* and the age of the car in years.

Age of car (years)	2	3	6	9	12	13	8	1	2	6
Price of car ($)	$9000	$8500	$5100	$3900	$3000	$2400	$4500	$10 100	$9400	$6000

a) Plot the data on graph paper. (*Please read this whole question before creating your scatter plot*).

b) Examine your graph. What type of correlation exists?

   negative.

c) Draw the line of best fit.

d) Estimate the price of Honda Civic that is 14 years old. What is this type of prediction called?

   $1500. extrapolation.

e) Kerri finds a Honda Civic that is 7 years old and priced at $4300. Is this car a fair price? Explain how Kerri could use your line of best fit to determine whether the car is a fair price or not.

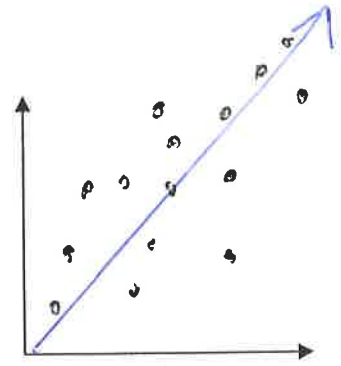   Yes. According to line of best fit, expected cost is closer to $6000.

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12

Staple your graph paper to this test when you have completed.

2. a) *If appropriate,* draw a line of best fit on each scatter plot below.
    b) Describe each correlation (under the graph).

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6
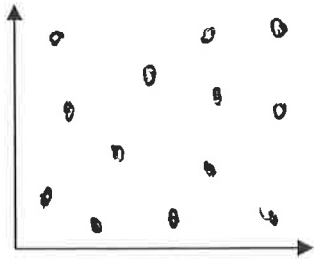
no correlation
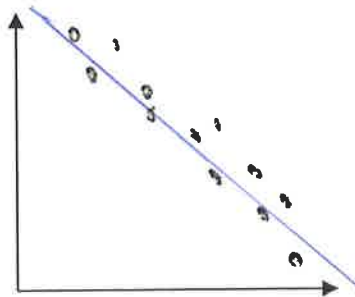
strong negative

weak positive.

3. Solve each of the following.

a) $x - 9 = 12$

$x = 21$

b) $\frac{a}{4} = 12$

$a = 48$

c) $-5x = 10$

$x = -2$

d) $3x - 11 = 10$

$3x = 21$

$x = 7$

___
5

e) $5 = 4a + 11$

$-6 = 4a$

$a = -\frac{6}{4}$

$a = -\frac{3}{2}$

f) $18 = \frac{5}{2}y - 2$

$20 = \frac{5}{2}y$

$40 = 5y$

$y = 8$

g) $4x - 2 - 7x = 12 + 4x$

$4x - 7x - 4x = 12 + 2$

$-7x = 14$

$x = -2.$

___
7

Name: _____

4. Solve each of the following.

a) $3(6x + 4) = -2(3x + 6)$

$18x + 12 = -6x - 12$

$18x + 6x = -12 - 12$

$24x = -24$

$x = -1$

8

b) $2 + 3(x - 4) = 5 - (x + 7)$

$2 + 3x - 12 = 5 - x - 7$

$3x + x = -2 - 2 + 12 + \cancel{8}$

$4x = +\cancel{8}$

$x = +\cancel{2}$

c) $\sqrt{x} + 12 = 20$

$\sqrt{x} = 8$

$x = 64$

3

↑

6. Solve each of the following.

a) $\frac{2}{3}(2x - 5) = 5x$

$\frac{4}{3}x - \frac{10}{3} = 5x$

8

$4x - 10 = 15x$

$-11x = 10$

$x = -\frac{10}{11}$

b) $\frac{3}{4}y + \frac{1}{6} = \frac{3}{2} - \frac{1}{3}y$

$\frac{9}{12}y + \frac{2}{12} = \frac{18}{12} - \frac{4}{12}y$

$9y + 2 = 18 - 4y$

$9y + 4y = 18 - 2$

$13y = 16$

$y = \frac{16}{13}$

6   cont. Solve the following:

c) $\dfrac{x+2}{4} = \dfrac{4x-1}{3}$

$3(x+2) = 4(4x-1)$

$3x+6 = 16x - 4$

$3x - 16x = -6 - 4$

$-13x = -10$

$x = \dfrac{10}{13}$

d) $\dfrac{3q-1}{3} = \dfrac{q+1}{2} - 3$

$\dfrac{6q-2}{6} = \dfrac{3q+3}{6} - \dfrac{18}{6}$
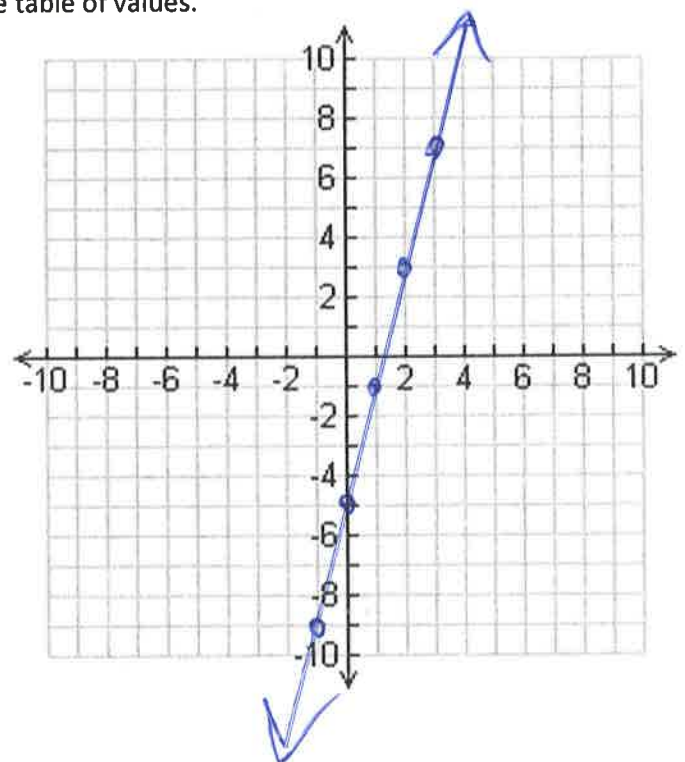
$6q - 2 = 3q + 3 - 18$

$6q - 3q = 3 - 18 + 2$

$3q = -13$

$q = \dfrac{-13}{3}$

_____
8

7. Graph the relationship below by first completing the table of values.

$y = 4x - 5$

x	y
-3	-17
-2	-13
-1	-9
0	-5
1	-1
2	3
3	7

_____
4

8. Graph the relationship below by first completing the table of values.

$y = x^2 + 2x$

16 -8

4

x	y
-4	8
-3	3
-2	0
-1	-1
0	0
1	3
2	8
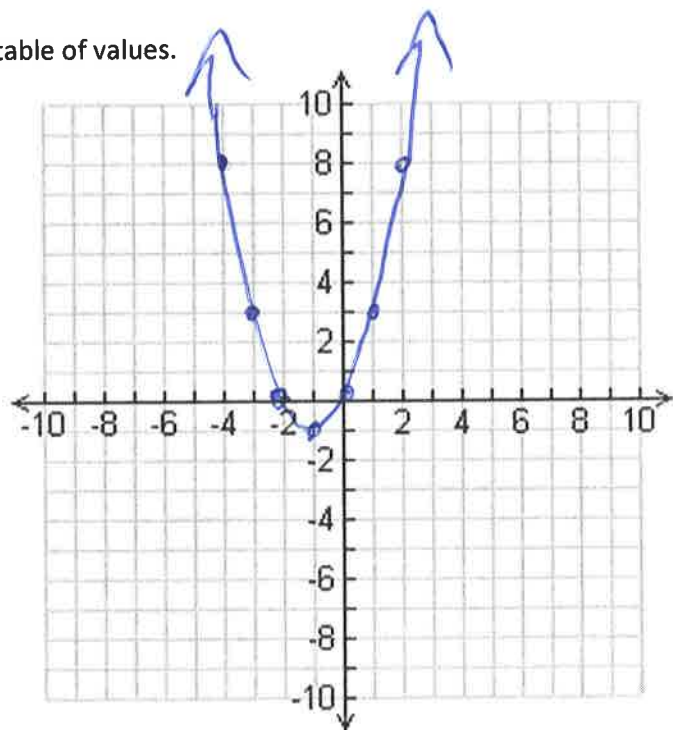
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4

9. Write an equation that has **no solution**. Explain.

$x^2 + 1 = 0$ $\sqrt{x} = -1$

$2x + 3 = 2x + 1$

lots. - -

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2