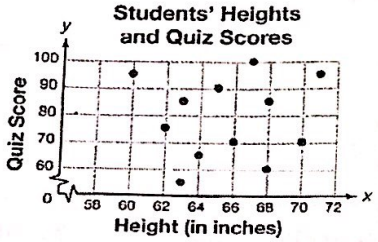
Name Answer Key

Math 8 - Unit 6 Review

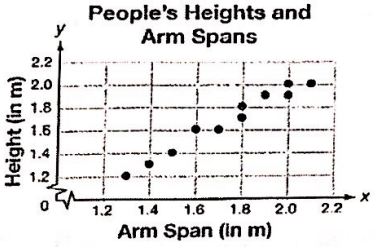
**For each scatter plot, describe the association shown as linear or nonlinear. If no association is shown, state that. If the association is linear, identify it as positive or negative.**

1.




NO association

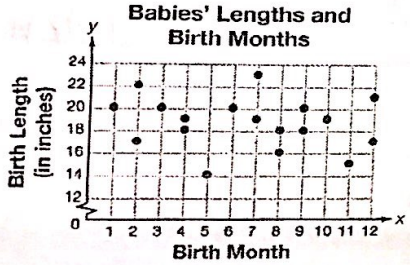
2.




positive, linear association

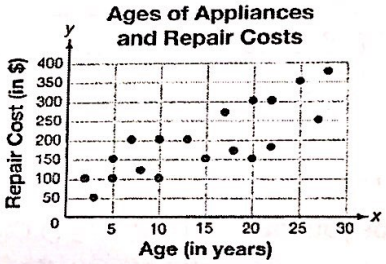
**Choose the best answer.**

3. The scatter plot shows the lengths of several babies and the numbers representing the months in which they were born. Which best describes the association, if any, that is shown?




A. positive association
B. negative association
C. no association
D. nonlinear association

4. The scatter plot shows the ages of appliances and the costs of repairing them. Which best describes the association, if any, that is shown?




A. positive association
B. negative association
C. no association
D. nonlinear association

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5. The late fees for a school library are resented by the function c = 0.25d, where c is the total cost and d is the number of days a book is late. The fees charged by a city library are shown in the table.

| Days Late | 1 | 2 | 3 |
|---|---|---|---|
| Cost ($) | 0.35 | 0.70 | 1.05 |

+1 +1 +.35 +.35

a) Compare the functions' y-intercepts and rates of change.

Both have no y-intercepts. School library has a ROC of .25, while the city library has a ROC of .35

b) Shamar checks out one book at each library and returns both books 3 days late. What are the fees for each library?

y = .35x

School

y = .25(3)

y = .75¢

City

From looking at the tabe $1.05



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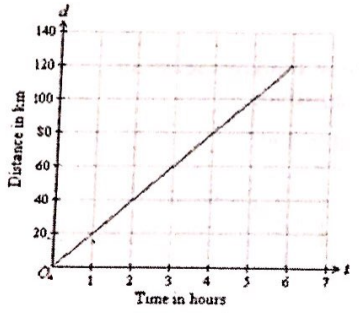
6) Given the following graph, find the rate of change. Does the graph represent a direct relationship? Explain.




Rate of change = 20

$y = 20x$

Yes, this is a direct proportion because it crosses through the origin.

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The maximum distance traveled by the space shuttle can be determined using the equation **d = 4.8s**, where *d* is the distance, in miles, and *s* is the number of seconds. The table shows the distance traveled by the Apollo 10 astronauts returning from the moon.

**Distance Traveled by Apollo 10**

| Number of Seconds | Distance Traveled (in miles) |
|---|---|
| 5 | 23.5 |
| 10 | 47 |
| 15 | 70.5 |
| 20 | 94 |

+5 → 23.5

$y = 4.7x$

7) Compare the slopes to determine which craft – the space shuttle or Apollo 10 – traveled at a greater speed and explain the steps you took. The space shuttle has the greater rate of change.

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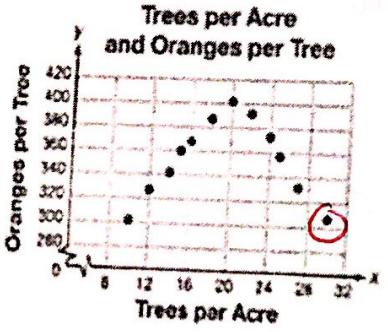
**Describe the association shown, if any, by the scatter plot in as many ways as possible, using terms such as linear or nonlinear and positive or negative. Identify any outlier(s).**

8.



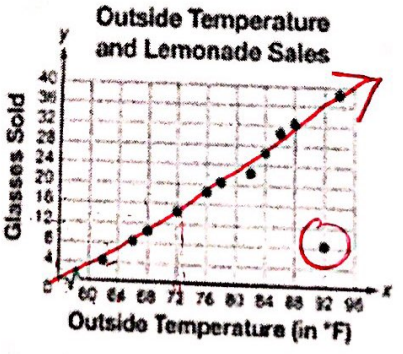

a) Describe the association. no association

b) Draw the trend. N/A

c) Write equation of the trend line. N/A

d) Identify any outlier(s) circled on graph

9.




(86, 32)
(72, 16)

$\frac{32-16}{86-72} = \frac{16}{14} = \frac{8}{7}$

a) Describe the association. positive, linear association

b) Draw the trend.

c) Write equation of the trend line. $y = \frac{8}{7}x$

d) Identify any outlier(s) circled on graph



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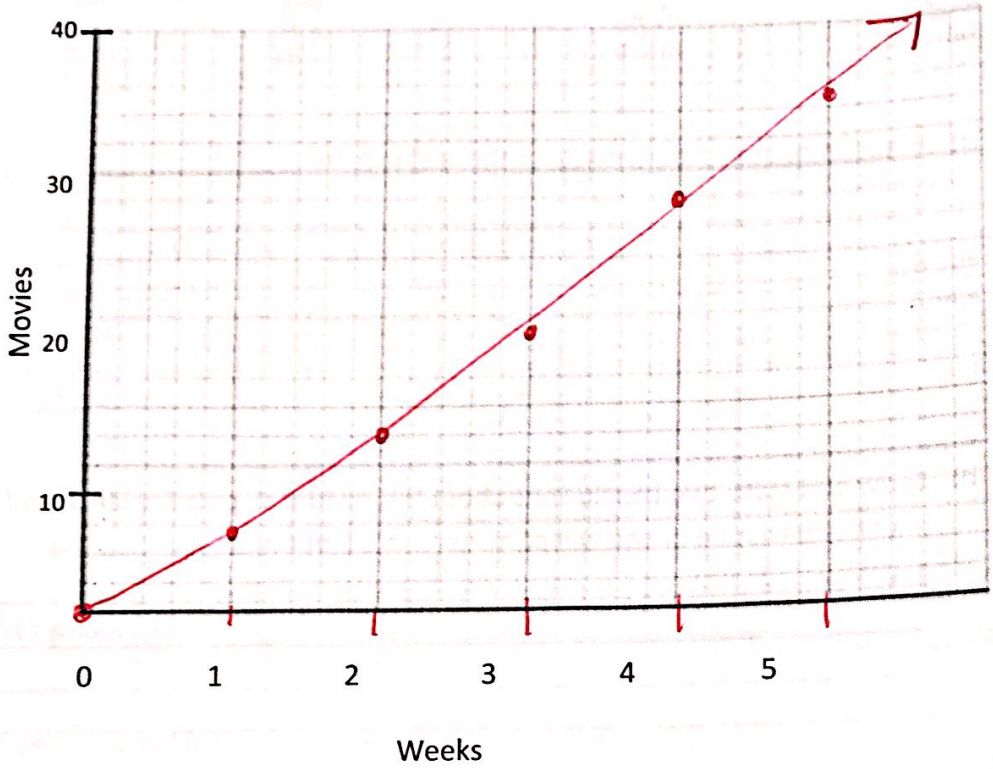
10) A store receives an average of 7 new movies per week.

a) Make a table to represent the number of movies rented each week

b) Graph the number of movies the store receives

| Weeks, $w$ | Movies, $m$ |
|---|---|
| 1 | 7 |
| 2 | 14 |
| 3 | 21 |
| 4 | 28 |
| 5 | 35 |

goes by 2's




11) The number of baskets a company produces each day is shown in the table.

| Number of Days, d | Total Baskets, b |
|---|---|
| 1 | 45 |
| 2 | 90 |
| 3 | 135 |
| 4 | 180 |

+1 +45 +45

a) Write an equation to find the total number of baskets crafted in any number of days. Describe the relationship in words.

$y = 45x$

For every day there is 45 baskets

45 baskets per day.

b) Use the equation to determine how many baskets the company makes in **one non-leap year**.

365 days

$y = 45(365)$

$y = 16{,}425$ baskets



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12) Cathy wanted to see if there was a relationship between students' grade levels and school club participation. She made this two way table to show her results.

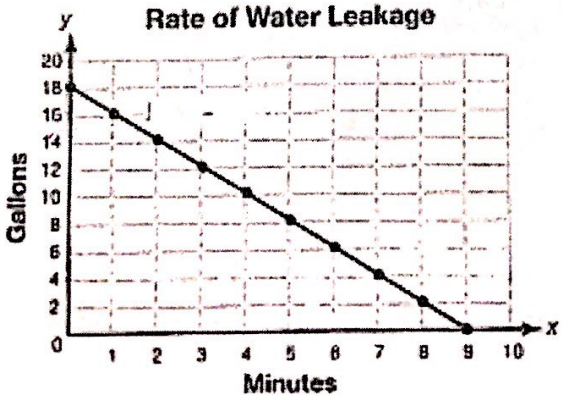
| | One or More Clubs | Not in a Club | Total |
|---|---|---|---|
| Grade 6 | 6 | 44 | 50 |
| Grade 7 | 23 | 27 | 50 |
| Grade8 | 40 | 10 | 50 |
| Total | 69 | 81 | 150 |

a) Find the relative frequencies for the table above.

| | One or More Clubs | Not in a Club | Total |
|---|---|---|---|
| Grade 6 | | | |
| Grade 7 | | | |
| Grade8 | | | |
| Total | | | |

b) Draw and state two conclusions about the relationships between a student's grade level and the likelihood that he or she will participate in school clubs.

13) **A water tank that holds 18 gallons leaks two gallons of water every minute. Determine the rate of change and initial value of the situation and use them to write an equation. Then graph the relationship.**




$y = -2x + 18$

ROC IV



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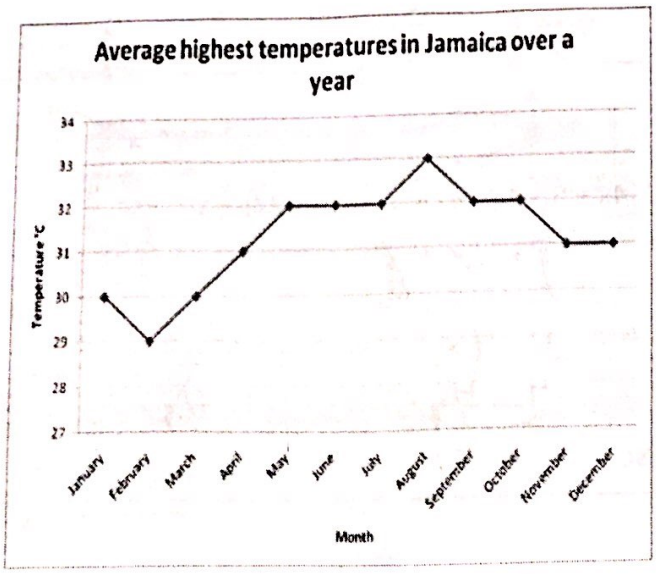
Use the graph to answer the questions below.

The **line graph** shows temperatures over the year in Jamaica.




14) Which month had the highest temperature? August

15) Which month had the lowest temperature? February

16) What is the difference in temperature between February and May? 29 + 32 = 3°C

17) How many months have a temperature higher than 30°C? 9 months

18) What is the range of temperatures in Jamaica over the year? 29 to 33 → 4°C

19) Would you expect the temperature range in the UK to be similar or different? Explain your answer.

*Answers will vary*

20) Which equations represent proportional relationships?

A) $y = 3x$ B) $y = \frac{1}{2}x - 3$ C) $y = 7x$ D) $y = -2x$ E) $y = \frac{2}{3}x$ F) $y = x$

**Unit 1 and 2**



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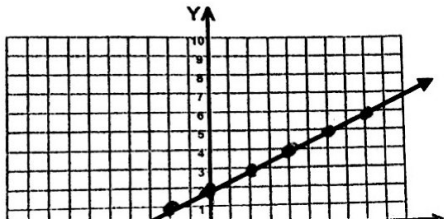
**Unit 4**

28) Given the following line, complete the table and write the equation of the line.

| x | y |
|---|---|
| 0 | 2 |
| 2 | 3 |
| 4 | 4 |
| 6 | 5 |

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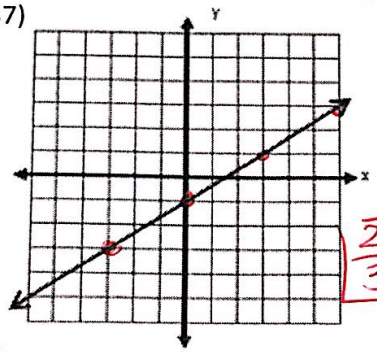
Determine the rate of change.

36) $3 - x = y$

$y = -x + 3$

ROC = $-1$

37)




$\frac{2}{3}$

38)

| x | y | |
|---|---|---|
| 0 | -1 | +8 |
| 2 | 7 | +8 |
| 4 | 15 | |
| 6 | 23 | |
| 8 | 31 | |

+2 +2

$\frac{8}{2} = 4$

Determine the number of solutions. (one solution, no solution, or infinite solutions).

39) $y = 2x + 8$
$y = 3x - 7$

One solution

40) $y = -2x + 8$
$y = -2x - 4$

no solution

41) $y = 2x + 3$
$\frac{5y}{5} = \frac{10x}{5} + \frac{15}{5}$
$y = 2x + 3$

infinite solutions

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