

Name: _____ Hour: _____

Algebra IB Exam Review
Chapters 5 – 7.3

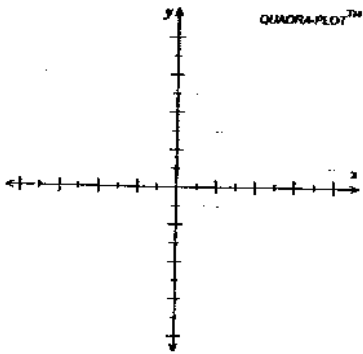
CHAPTER 5

1. Identify the slope and y-intercept of the following equations and then graph each line.

a. $y = 2x + 2$

slope = _____

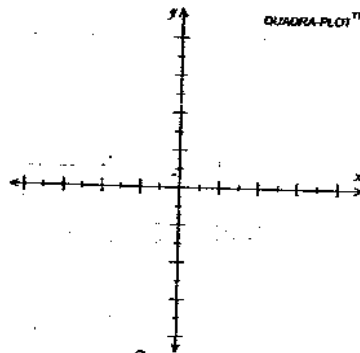
y-intercept = _____



b. $y = \frac{1}{4}x - 4$

slope = _____

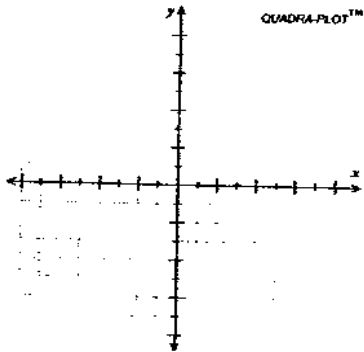
y-intercept = _____



c. $y = -3x - 1$

slope = _____

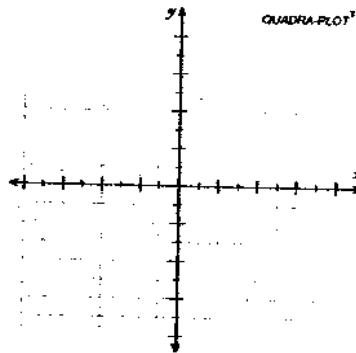
y-intercept = _____



d. $y = -\frac{3}{4}x + 2$

slope = _____

y-intercept = _____



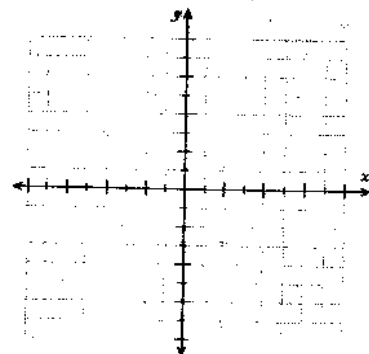
2. Use ALGEBRA to find the x- and y-intercepts of the following equations, then graph each line.

a. $2x + 4y = 8$

x-int. = _____

y-int. = _____

GRAPH



b. $-3x - 4y = 12$

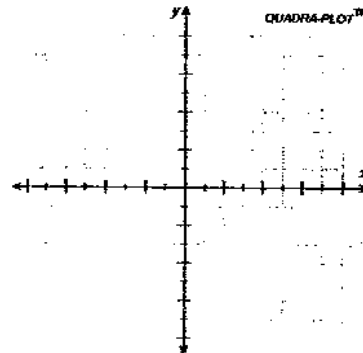
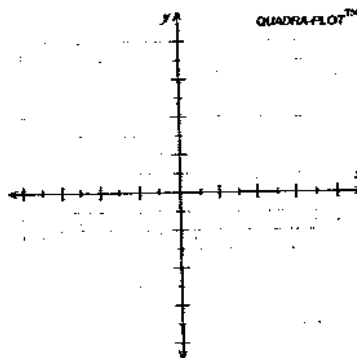
x-int. = _____

y-int. = _____

c. $y = \frac{1}{2}x - 1$

x-int. = _____

y-int. = _____



3. Use the following information to write a point-slope and a slope-intercept equation for each.

a. a line with slope 4 and contains the point (1,2).

Point-slope _____

Slope-intercept _____

b. a line that contains the points (5,4) and (0,-1).

Point-slope _____

Slope-intercept _____

4. Write the following equations in STANDARD form.

a. $y = -5x - 5$

b. $y + 8 = 2x + 8$

5. Write the following equations in SLOPE-INTERCEPT form.

a. $7x + y = 22$

b. $9x - 3y = 12$

6. Write the equation for simple interest, then solve the equation for the principle P.

$I =$ _____

$P =$ _____

7. How much interest would I earn if I put \$5000 into an account with 6% interest for 3 years?

8. What was the initial principle if I earned \$22 in interest over 4 years with a rate of .4%?

CHAPTER 6

1. The data in the table below show the cost of ordering DVDs from an online company, including a flat shipping fee.

Number of DVDs (n)	Cost in Dollars (C)
3	11
6	17
10	25

What is the equation of the line that best fits the data if the number of DVDs (n) is graphed on the horizontal axis and the cost C is graphed on the vertical axis?

- a. $C = 2n$
- b. $C = 2n - 5$
- c. $C = \frac{1}{2}n + 5$
- d. $C = 2n + 5$

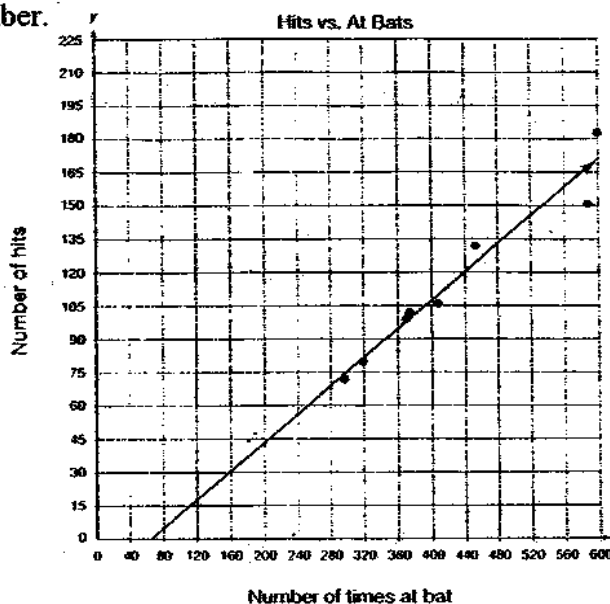
2. Your teacher asks you to make a scatter plot of the data below. He asks you to define time as the number of years since 1996. What number would you use for 2000?

Year	1996	1997	1998	1999	2000
Number of graduates	224	237	219	222	241

- a. 2
- b. 3
- c. 4
- d. 5

3. A baseball coach would like to be able to predict the number of hits his players will get based on the number of times they are at bat. He graphs some data and finds a best fit line. The equation of the best-fit line is $y = 0.32x - 20.51$, where x is the number of times at bat and y is the number of hits. How many hits should he expect from a player who is at bat 175 times? Round your answer to the nearest whole number.

- a. 35
- b. 36
- c. 76
- d. 77



4. How many times is a player at bat if he has 200 hits? Round your answer to the nearest whole number.

- a. 560
- b. 561
- c. 689
- d. 690

5. In the best fit equation $y = 0.32x - 20.51$, what does the slope mean?

- a. The increase in the number of hits for each time at bat.
- b. The decrease in the number of hits for each time at bat.
- c. The increase in the number of times at bat for each hit.
- d. The decrease in the number of times at bat for each hit.

6. In the best fit equation $y = 0.32x - 20.51$ from the baseball scenario, which of the following best describes what the y-intercept would represent in the problem situation?

- a. The number of times at bat for zero hits.
- b. The number of hits for zero times at bat.
- c. The number of hits for each time at bat.
- d. The number of times at bat before getting one hit.

7. Using the best fit equation, how many at bats would you expect it to take to get 45 hits?

8. How many at-bats would it take to reach the career milestone of 3,000 hits?

9. If a line of best fit models the data very well, what would you expect to see in a graph of the data and the line?
- The line has a positive slope.
 - The line has a negative slope.
 - The line is very close to all of the points.
 - The line is close to some of the points but not very close to other points.

10. You enter data into a graphing calculator to find the linear regression equation. In addition to producing the equation, the calculator produces a correlation coefficient. Which of the following correlation coefficients would indicate that the data are NOT very close to forming a straight line?
- 0.8979
 - 0.08979
 - 0.8979
 - 0.9785

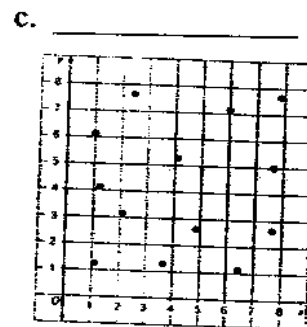
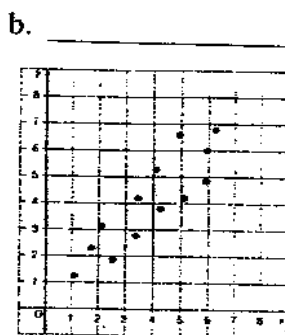
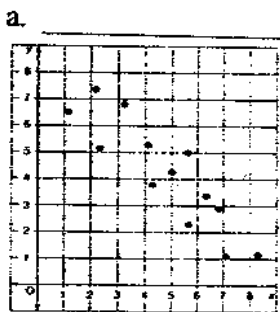
11. Using your calculator, compute the line of best fit and correlation coefficient for the data listed in the table below.

Games	Goals
games	goals
2	3
5	4
8	6
12	9
18	13
22	15
25	16
30	20

Equation: _____

r: _____

12. Tell whether the following scatter plots have positive, negative, or no correlation.



CHAPTER 7

1. Parallel, Perpendicular or Neither: Label each system of linear equations as Parallel, Perpendicular, or Neither.

a.
$$\begin{cases} y = 3x - 2 \\ y = 2 + 3x \end{cases}$$

b.
$$\begin{cases} y = 8x \\ y = -8x \end{cases}$$

c.
$$\begin{cases} 2x - 6 = y \\ y = -\frac{1}{2}x + 4 \end{cases}$$

2. Which equation represents a line that is parallel to the line $y = 3x - 1$?

a. $y = -3x + 4$

b. $y = \frac{1}{3}x + 4$

c. $y = 3x + 4$

d. $y = \frac{1}{3}x - 1$

3. You decide to run your own business selling T-Shirts. It will cost \$4.25 per shirt to make, plus a one-time fee of \$43.75 to set up the design. You are going to sell the shirts for \$12.00 each. Let x represent the number of t-shirts, and y is the amount of money in dollars.

a. Which of the following is the equation for **production cost**?

i.) $y = 12x$

ii.) $y = 4.25x$

iii.) $y = 12x + 43.75$

iv.) $y = 4.25x + 43.75$

b. Which of the following is the equation for **income**?

i.) $y = 12x$

ii.) $y = 4.25x$

iii.) $y = 12x + 43.75$

iv.) $y = 4.25x + 43.75$

c. How can you find the **profit** you will make?

4. Using the above information, how much **PROFIT** will you make from 5 shirts? What does this mean in the problem situation? Use a complete sentence in your answer.

5. Using the above information, how much **PROFIT** will you make from 26 shirts? What does this mean in the problem situation? Use a complete sentence in your answer.

6. Where is your **break-even point**? What does this mean in the problem situation? Use a complete sentence in your answer.

7. When is income greater than production cost? Use a complete sentence in your answer.

8. Solve the following systems using substitution. (or matrices?)

a.
$$\begin{cases} x - y = 3 \\ 2x + y = 12 \end{cases}$$

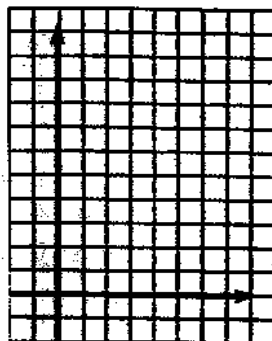
b.
$$\begin{cases} 3x = y - 20 \\ x + y = 20 \end{cases}$$

c.
$$\begin{cases} 7x + y = 27 \\ 2x + 2y = 18 \end{cases}$$

9. Solve this system by graphing.

$$\begin{cases} y = 2x + 3 \\ y = -1x + 6 \end{cases}$$

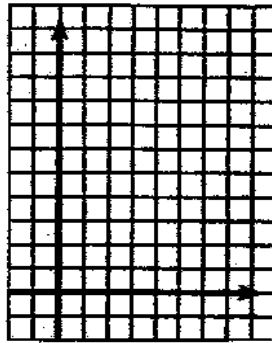
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10. Solve this system by graphing.

$$\begin{cases} y = \frac{1}{2}x + 2 \\ y = -2x + 7 \end{cases}$$

(,)



11. Find the slope between these points. Reduce fractions.

a. $(2, 7)$
 $(6, -9)$

b. $(4, 11)$
 $(0, -2)$

c. $(-2, -5)$
 $(-8, -11)$

12. Find the slope given the rise and run. Reduce fractions.

a. rise = 4
run = 2

b. rise = -1
run = 5

c. rise = -7
run = 2

13. Match each piece of the definition with the piecewise graph.

- a. $x + 1$
- b. $2x - 5$
- c. 3

_____, $0 \leq x \leq 2$

_____, $2 \leq x \leq 4$

_____, $4 \leq x \leq 6$

