1) The following table shows the data from a study conducted involving 20 students as they prepared for and took the math section of the SAT exam.

Hours Studying	Math SAT score
4	390
9	580
10	650
14	730
4	410
7	530
12	600
22	790
1	350
3	400
8	590
11	640
5	450
6	520
10	690
11	690
16	770
13	700
13	730
10	640

a) Make a scatter plot of the data. What kind of correlation is shown?

Positive, Linear

b) Give the regression equation for the data.

$y = 25.63x + 345.26$

c) Give the correlation coefficient. How good a fit is the regression equation?

$r \approx 0.93$ pretty strong

d) What is the slope? What does it represent?

25.63   Your score will increase 25.63 points every hour you study

e) What is the y intercept? What does it represent?

345.26   If you don't study you would score 345.26

f) If a student studied for 15 hours, what would be the expected math SAT score? Did you use interpolation or extrapolation? (Domain goes from 1 to 22)

Expected score ≈ 730 (729.77)

g) If a student obtained a math SAT score of 720, how many hours did the student most likely spend studying?

Between 14 & 15 hours

Number 2 is on the back.

2) The table below shows the cost of attending a public university and private college *per semester* since 1995.

Years since 1995	Public University	Private College
0 ₉₅	$2,035	$10,348
1 ₉₆	$2,159	$11,379
2 ₉₇	$2,410	$12,192
3 ₉₈	$2,604	$13,055
4 ₉₉	$2,820	$13,874
5 ₂₀₀₀	$2,977	$14,537
6 ₂₀₀₁	$3,151	$15,581

a) Graph the data for a **public** university. What type of correlation does it appear to have?

Positive Linear

b) Give the regression equation for the cost of attending **a public** university.

$$y = 192.64x + 2015.79$$

c) If you choose to attend a **public** university, in the year that you graduate high school, ← 2024 which is 29 years after 1995 how much can you expect to *pay for a full year* of college?

$y = 192.64(29) + 2015.79$

$y = 7602.40$ or $y = 7602.35$
↑ table   ↑ calculator

← per semester { a year is 2 semesters }
so $15204.70 (calc)
or $15120.80 from table

d) Graph the data for a **private** college. What type of correlation does it appear to have?

Positive Linear

e) Give the regression equation for the cost of attending a **private** college.

$$y = 846.32x + 10456.18$$

f) If you choose to attend a private college, in the year that you graduate high school, how much can you expect to pay for a *full year* of college?

$y = 846.32(29) + 10456.18$

$y = 35,000$ or $y = 34999.46$
↑ table   ↑ calculator

← per semester { A year would cost $70,000 }
↑ table
or $69,998.92 (calc)

g) The cost of which type of post secondary education is increasing at the fastest rate? Explain.

Slope: The private college is increasing faster because it increases $846.32 a semester which is more than $192.64 a semester.

this demonstrates how using a rounded answer creates future answers that are different