The tables below show the scores on the same science pretest and the same science posttest for 20 students. Of the 20 students, 8 were randomly selected from the magnet school and 12 were randomly selected from those who applied to attend the magnet school but who were not selected and then attended their original school.

Magnet School		
Pretest Score	Posttest Score	Posttest − Pretest
80	97	17
78	98	20
86	84	− 2
78	79	1
64	89	25
71	77	6
71	83	12
73	88	15
$\overline{x} = 75.125$	$\overline{x} = 86.875$	$\overline{x} = 11.750$
$s = 6.770$	$s = 7.699$	$s = 9.407$

Original School		
Pretest Score	Posttest Score	Posttest − Pretest
83	80	− 3
80	89	9
63	65	2
79	78	− 1
83	93	10
77	79	2
66	70	4
80	84	4
73	80	7
90	90	0
77	78	1
90	91	1
$\overline{x} = 78.417$	$\overline{x} = 81.417$	$\overline{x} = 3.000$
$s = 8.207$	$s = 8.512$	$s = 3.977$

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(a) Perform a test to determine whether students who attend the magnet school demonstrate a significantly higher mean difference in test scores (Posttest − Pretest) than students who applied to attend the magnet school but who were not selected and then attended their original school.

Administrators were also interested in using pretest scores on this test as a predictor of posttest scores on the test. The following computer output contains the results from separate regression analyses on the magnet school scores and on the original school scores. The accompanying graph displays the data and separate regression lines for the magnet and original schools.

```
Regression Analysis:  Post_Magnet versus Pre_Magnet

Predictor       Coef  SE Coef      T       P
Constant       73.27    34.55   2.12   0.078
Pre_Magnet    0.1811   0.4583   0.40   0.706


S = 8.20920   R-Sq = 2.5%   R-Sq(adj) = 0.0%
```
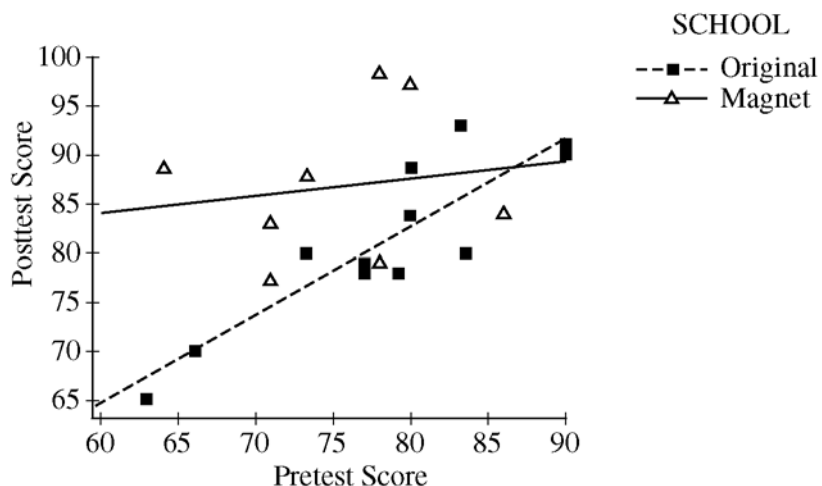
```
Regression Analysis:  Post_Original versus Pre_Original

Predictor        Coef  SE Coef      T       P
Constant         9.24    11.91   0.78   0.456
Pre_Original   0.9204   0.1512   6.09   0.000


S = 4.11463   R-Sq = 78.8%   R-Sq(adj) = 76.6%
```


(b) (i) State the equation of the regression line for the magnet school and interpret its slope in the context of the question.

  (ii) State the equation of the regression line for the original school and interpret its slope in the context of the question.

GO ON TO THE NEXT PAGE.