7.1 and 7.2

Regressor	**(1)**	**(2)**	**(3)**
High school graduate (X_1)	0.352** (0.021)	0.373** (0.021)	0.371** (0.021)
Male (X_2)	0.458** (0.021)	0.457** (0.020)	0.451** (0.020)
Age (X_3)		0.011** (0.001)	0.011** (0.001)
North (X_4)			0.175** (0.037)
South (X_5)			0.103** (0.033)
East (X_7)			– 0.102* (0.043)
Intercept	12.84** (0.018)	12.471** (0.049)	12.390** (0.057)

(a) The *t*-statistic is 0.352/0.021 = 16.76, which exceeds 1.96 in absolute value. Thus, the coefficient is statistically significant at the 5% level. The 95% confidence interval is $0.352 \pm 1.96 \times 0.021$.

(b) *t*-statistic is 0.458/0.021 = 21.81, and 21.81 > 1.96, so the coefficient is statistically significant at the 5% level. The 95% confidence interval is $0.458 \pm 1.96 \times 0.021$.

7.3. (a) Yes, age is an important determinant of earnings. Using a *t*-test, the *t*-statistic is 0.011/0.001=11 with a *p*-value approximately equal to zero, implying that the coefficient on age is statistically significant at the 1% level.

7.9. (a) Estimate

$$Y_i = \beta_0 + \gamma X_{1i} + \beta_2 (X_{1i} + X_{2i}) + u_i$$

and test whether $\gamma = 0$.

(b) Estimate

$$Y_i = \beta_0 + \gamma X_{1i} + \beta_2 (X_{2i} - 2X_{1i}) + u_i$$

and test whether $\gamma = 0$.

(c) Estimate

$$Y_i - X_{1i} = \beta_0 + \gamma X_{1i} + \beta_2 (X_{2i} - X_{1i}) + u_i$$

and test whether $\gamma = 0$.