Name:

Solve the following problems:


2. Answer the 5 problems following this page.
2. Solve for the roots of the following polynomial equation.

\[ x^3 - 7x + 6 = 0 \]

a) 1, 2, 3  
b) -1, 2, -3  
c) 1, -2, 3  
d) 1, 2, -3
17. A student writes several lines of code as follows:

```plaintext
x = 0;
y = 1;
while x <= 4
    y = y+1;
    x = x+2;
do
```

What is the value of variable \( y \) in the end of the program?

a) 3  
b) 4  
c) 5  
d) 6
20. An engineer-architect works for a big design firm. During the night (after working hours), he uses some of office’s equipment and materials to make an architectural model/maquette for his side job. He receives overtime salary because he is considered as working overtime. Why is this action considered unethical?

a) His contract prohibits misuse and misappropriation of office’s equipment
b) He may wear out the office’s materials
c) He may encourage other employees to do side jobs in the office
d) He can undercut his fee because he has a lower overhead
88. Based on several studies, what is the perception-reaction time AASHTO used to design Stopping Sight Distance?

a) 1.5 sec
b) 2 sec
c) 2.5 sec
d) 3 sec
90. A horizontal curve is designed to have a diameter of 1200 m. The tangent is 125 meters and the PI is located at sta 10+000 (in kilometer). Find the stationing of PT.

a) Sta 9+744
b) Sta 9+875
c) Sta 10+121
d) Sta 10+600