

Math 120  
Autumn 1999  
Quiz 1

Name: \_\_\_\_\_

**Instructions:**

- You will have 30 minutes.
  - Closed book, closed notes.
  - You must SHOW YOUR WORK to receive credit.
  - Give exact answers to all problems. For example, if the answer to a problem is  $\sqrt{2}$  or  $\frac{1}{3}$ , do not write 1.414 or .33, etc.
  - The point value of each problem is shown in parentheses to the left.
- 

(2) 1. Solve the equation  $\frac{x-3}{x+2} = \frac{1}{5}$ .

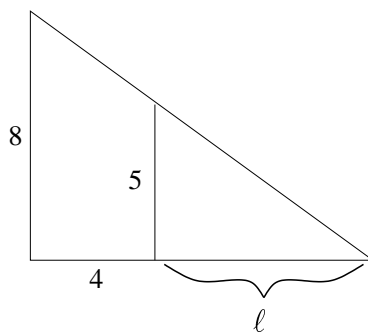
(2) 2. Factor the polynomial  $-2x^3 + 16x^2 + 40x$  into linear factors.

(2) 3. Find all numbers  $t$  which satisfy the equation  $3t^2 + 4t - 2 = 0$ .

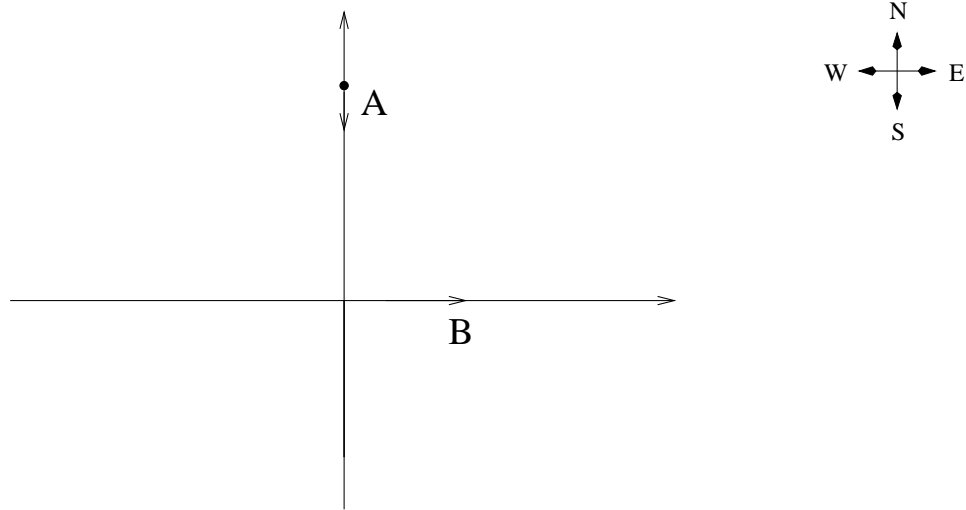
- (2) 4. Simplify the expression  $\frac{1}{2-x} - \frac{2}{3}$ . Use only one fraction bar to express your answer.

- (2) 5. Solve the equation  $T = 2\pi\sqrt{\frac{L}{180}}$  for  $L$ .

- (2) 6. Find the length  $\ell$  in the following right triangle.



7. At time  $t = 0$  car A is located one mile north of an intersection and is moving southbound at 40 miles per hour. At the same time, car B passes through the intersection moving eastbound at 30 miles per hour.



The units on each coordinate axis are miles and time is measured in hours.

- (2) (a) Where is car A located after 2 minutes?
- (2) (b) Give the position of each car in terms of time  $t$ . Express your answers as ordered pairs.

- (4) (c) When are the cars 2 miles apart? It's okay to give a decimal approximation, but you need to show the work that goes into getting your answer.