

MTH 135 REVIEW GUIDE FOR TEST V

I. Perform the indicated operations and simplify as much as possible.

$$1. \quad \frac{n - \frac{4}{n}}{1 + \frac{n}{2}}$$

$$2. \quad \frac{ab + bd - ac - cd}{c - b}$$

$$3. \quad \frac{x^2 + 3x}{x^2 + 2x - 3} \div \frac{x}{x - 1}$$

$$4. \quad \frac{x - 1}{(x + 2)^2} + \frac{3}{(x + 2)(2x - 3)} - \frac{x^2 - 2x + 13}{(x + 2)^2(2x - 3)}$$

$$5. \quad xy^2(x^{-1} + \frac{1}{xy})$$

II. Solve for x in each of the following problems.

1.
$$\frac{3}{x+2} - \frac{2}{x} = \frac{3}{x}$$

2.
$$y(x+2) = 3$$

3.
$$3xy = 2xz + 3y$$

4.
$$7xy + z = 4$$

5.
$$\frac{3x+2}{x-5} = 2 + \frac{17}{x-5}$$

6.
$$\frac{3}{x-2} = 0$$

7.
$$\frac{5}{x-4} = \frac{7}{x}$$

III. Solve the following application problems.

1. A quality control inspector examined 200 light bulbs and found 18 to be defective. At this rate, how many defective bulbs would there be in a lot of 22,000?
2. When a tree 18 feet tall casts a shadow 54 feet long, how long is a shadow is cast by a person 6 feet tall?
3. In Glacier National Park, 52 mountain goats were caught, tagged, and then set free. Later 74 mountain goats were observed and 12 of them were tagged. Approximately how many mountain goats are in the park?
4. The Big Muddy has a current of 3 miles per hour. A motorboat takes the same amount of time to go 12 miles downstream as it does to go 8 miles upstream. What is the speed of the boat in still water?
5. If Sam can paint a house in 4 hours, Steven can paint the house in 3 hours, and Tony can paint it in 5 hours, how long would it take them if they are all working together?