Quiz 1

MATH 100:11 Mathematical Concepts
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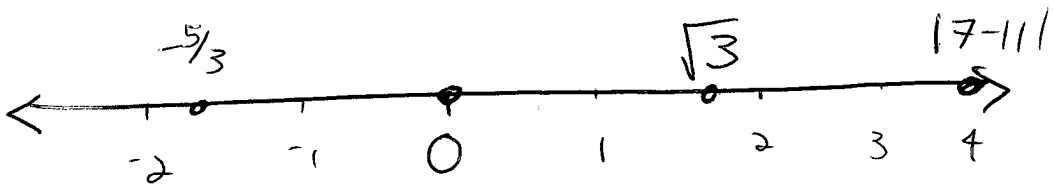
Name: SOLUTIONS

You may use calculators, but each question can be done without them. This quiz is double-sided! Be sure to explain your answers. Even if you get the correct answer, you may not get full marks if you haven't explained how. However, if you don't get the correct answer, you may get partial marks for trying something- so don't leave anything blank! The total quiz is out of 10, and the mark value for each question is given beside the question.

1. Place the following numbers on a number line: $0, -5/3, |7-11|, \sqrt{3}$ [2]



$-5/3 \sim -1.66..$

$|7-11| = |-4| = 4$ $\quad \sqrt{3} \sim 1.7..$

2. Simplify and **show each step**: [3]

$$\frac{\frac{7+4\times2^3-9}{-5^2+2\times10}}{\frac{3\times(1-4)+7}{(-1)^3+3}}$$

BEDMAS

top $\frac{7+4\times2^3-9}{-5^2+2\times10} = \frac{7+4\times8-9}{-25+20} = \frac{7+32-9}{-5} = \frac{30}{-5} = -6$

bottom $\frac{3\times(1-4)+7}{(-1)^3+3} = \frac{3\times(-3)+7}{-1+3} = \frac{-9+7}{2} = \frac{-2}{2} = -1$

So $\frac{\text{top}}{\text{bottom}} = \frac{-6}{-1} = 6$

Perform the following and give the answer in lowest terms: [4]

(a)

$$\frac{7}{48}+\frac{5}{42}$$

$48 = 8\times 6$

$42 = 7\times 6$

so LCM is $6\times 7\times 8$

$$\frac{7}{48}+\frac{5}{42} = \frac{7\times 7}{48\times 7}+\frac{5\times 8}{42\times 8} = \frac{49}{336}+\frac{40}{336}$$

$$= \frac{42}{\frac{8}{336}}$$

$$= \frac{89}{336}$$

89 prime so in lowest terms

(b)

$$\frac{12}{80}\times\frac{72}{54}$$

$$= \frac{6\times 2}{8\times 10}\times\frac{8\times 9}{6\times 9} = \frac{2}{10} = \frac{1}{5}$$

3. Give an example of a rational number between 3/11 and 5/7. [Leave everything in fractions, do NOT use decimals] [1]

halfway:

$$\frac{\frac{3}{11}+\frac{5}{7}}{2} = \frac{\frac{3\times 7}{11\times 7}+\frac{5\times 11}{7\times 11}}{2}$$

$$= \frac{\frac{21}{77}+\frac{55}{77}}{2} = \frac{76}{154} = \frac{38}{77}$$