

**MAT.1180 - MATHEMATICAL CONCEPTS AND  
APPLICATIONS**  
TEST 1 REVIEW (Sep, 14)

- Materials: Chapter 1, 5.
  - Lecture notes are always part of the review materials, please do not start the problems until you are already familiar with the materials in lecture notes.
  - The test is closed-book, closed-note.
  - Test Date: Thursday, 9/19.
  - Test Time:
    - The test starts at the **beginning** of class.
    - The test is 40 minutes long. No extended or extra time will be given for lateness.
  - Use of Calculator:
    - Any traditional calculator is allowed. And you may want to bring one.
    - No cellphone calculator or any other electronic device is allowed.
    - No sharing of calculator is allowed.
  - All work must be shown to receive credits.
  - This review sheet may NOT contain actual problems from the test.
  - The actual test does NOT contain as many problems as this worksheet does.
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1. Find the prime factorization of each of the following numbers.

30, 72, 288

2. Perform the indicated operation. Leave the answer in simplest form.

(a)  $\frac{6}{7} \cdot \frac{28}{9}$

(b)  $-\frac{8}{15} \div \frac{2}{3}$

(c)  $\frac{1}{5} + \frac{3}{4}$

(d)  $\frac{3}{10} - \frac{1}{6}$

(e)  $\left(\frac{1}{2}\right)^2 - \left(\frac{2}{3} - \frac{1}{4}\right)(2)$

3. Perform the indicated operation. Leave the answer in simplest form.

(a)  $12\sqrt{10} - 9\sqrt{40} + \sqrt{90}$

(b)  $3\sqrt{52} - 2\sqrt{637}$

(c)  $4\sqrt{2} + 3\sqrt{18} - 2\sqrt{50}$

(d)  $3\sqrt{27} - \sqrt{75} + 3\sqrt{3}$

4. Rationalize the denominator and simplify if possible.

(a)  $\frac{\sqrt{13}}{\sqrt{17}}$

(b)  $\frac{\sqrt{4}}{\sqrt{10}}$

(c)  $\frac{\sqrt{2}}{\sqrt{18}}$

(d)  $\frac{\sqrt{8}}{\sqrt{12}}$

(e)  $\frac{\sqrt{6}}{\sqrt{8}}$

(f)  $\frac{\sqrt{9}}{\sqrt{18}}$

5. Evaluate and write using Scientific Notation.

(a)  $\frac{21400}{0.002}$

(b)  $\frac{43.2}{120}$

(c)  $\frac{2.625}{87500}$

(d)  $(2.01)(31.5)$