

**Math 0110 Exam Review 1**

Sunday, Feb. 17, 8:00-10:00 pm in Physics 126

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- |   |       |   |       |
|---|-------|---|-------|
| • Operations with Decimals                | (S1)  | • Linear Equations in One Variable      | (2.1) |
| • Operations with Fractions               | (S2)  | • Introduction to Problem Solving       | (2.2) |
| • Algebraic Expressions & Sets of Numbers | (1.2) | • Formulas & Problem Solving            | (2.3) |
| • Operations on Real Numbers              | (1.3) | • Linear Inequalities & Problem Solving | (2.4) |
| • Properties of Real Numbers              | (1.4) | • Compound Inequalities                 | (2.5) |

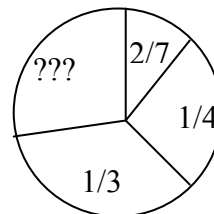
1. Express 1530 as a product of prime factors (or in prime factor form).
2. a. Find the greatest common divisor of 30 and 72.      b. Find the least common multiple of 30 and 72.  
 c. Find the least common multiple of  $(2^3)(3)(5^2)$  and  $(2^2)(5)(7^2)$ .  
 d. a. Find the greatest common factor of  $(2^3)(3)(5^2)$  and  $(2^2)(5)(7^2)$ .

3. Perform the operations and simplify: a.  $2 - \frac{9}{16} - \frac{7}{18} - \frac{13}{24}$     b.  $\frac{5}{2} - \frac{3}{2} \times \frac{8}{3} + \frac{1}{3}$       c.  $\frac{2}{5}(x-1) - \frac{2-3x}{10}$ .

4. Evaluate and simplify:  $7 - 4[3 - (4y - 5)]$

5. Evaluate:  $\frac{(-1-4)(-3^2) - |-9|}{36 \div 3 \times 2^2}$ . Express the answer as a reduced fraction.

6. The circle below represents a whole, or 1. Determine the unknown fractional part of the circle. Express the answer as a reduced fraction.



7. Find the value of the algebraic expression for the given values:

i)  $a + \frac{b}{c}$ , when  $a = \frac{1}{2}$ ,  $b = \frac{2}{3}$ , and  $c = \frac{5}{3}$ .    ii)  $a - b - \sqrt{a^2 - b^2}$ , when  $a = 5$  and  $b = -3$ .

8. Match the property illustrated with the name of the property:

- |   |                            |
|---|----------------------------|
| (a) $(ab)c = a(bc)$                     | 1) distributive property   |
| (b) $5(x - 3z) = 5x - 15z$              | 2) associative property    |
| (c) $4x + 0 = 4x$                       | 3) commutative property    |
| (d) $4x + (-4x) = 0$                    | 4) additive identity       |
| (e) $\frac{4}{3} \cdot \frac{3}{4} = 1$ | 5) multiplicative identity |
| (f) $10 \cdot 1 = 10$                   | 6) additive inverse        |
| (g) $5x + 3y = 3y + 5x$                 | 7) multiplicative inverse  |

9. Simplify (a)  $-(-3)^2$     (b)  $-(-3^2)$     (c)  $-5^2 - (-2)^2 - (-8^2) - (-6)^0 - |-3|$

10. True or False: (a) 3 is the multiplicative inverse of  $-\frac{1}{3}$     (b)  $\frac{1}{0} = 0$

11. Given the set  $\{-9, -\frac{5}{6}, -0.\bar{6}, 0, 0.25, \sqrt{5}, \pi, \sqrt{64}\}$ , list the

- (a) natural numbers    (b) whole numbers    (c) integers    (d) rational numbers    (e) irrational numbers  
 (f) real numbers    (g) numbers which are rational but not integers

12. Express using math symbols:

a. The sum of 15 and three times a number is 8 less than the reciprocal of the number.

b. The sum of 3 consecutive odd integers if the last integer is  $x$ .

13. Solve the equation for  $x$ :  $2x + 5 = 3(x + 2) - x$ .

14. Solve the equation for  $x$ :  $2(3x - 2) = 2 + 6(x - 1)$ .

15. Solve the equation for  $x$ :  $\frac{x+5}{2} + \frac{1}{2} = 2x - \frac{x-3}{8}$ .

16. Solve the equation for the specified variable: (a)  $T = 3vs - 4ws + 5vw$ ; for  $v$  (b)  $A = \frac{1}{2}h(a+b)$ ; for  $b$

17. List the elements of the indicated set, given that  $A = \{12, 14, 16, 18\}$  and  $B = \{11, 12, 16, 17, 19\}$ .

a.  $A \cap B$

b.  $A \cup B$

18. Solve the following inequalities and state the solution set using interval notation:

(a)  $\frac{1-2x}{3} > 4$

(b)  $3(x-1) \geq 3x-8$

(c)  $2(x+2) - x < x-8$

19. Solve the compound inequality:  $-\frac{1}{2} \leq \frac{3x+1}{4}$  AND  $\frac{5x-1}{2} > 2$  Express the answer in interval notation.

20. Solve the compound inequality:  $2x - 5 \geq 3$  OR  $-x + 4 > 2$ .

21. Solve the compound inequality:  $2x - 1 < x \leq 3x + 2$ .

22. Joanne paid \$24.80 for a necklace including 7% tax. Let  $x$  be the tag price of the necklace. Write an equation that you could solve to determine the tag price of the necklace.

23. Of the 1,075 tornadoes that occurred during the year 2000, 24% occurred during the month of May. How many tornadoes didn't occur during May that year?

24. In a recent election, candidate A got 5 votes for every 3 votes for candidate B. If there were 1312 total votes cast, how many votes did candidate A receive?

### SUGGESTIONS FOR FURTHER STUDY:

FS2007 Exam 1 available at <http://eres.missouri.edu> (electronic reserves)

Supplements 1 – 5 in The Math 0110 Course Information and Course Syllabus book

The review problems sent to your mizzou email account from Sandi Athanassiou, the Course Coordinator

### KEY TO REVIEW QUESTIONS:

1.  $2 \cdot 3^2 \cdot 5 \cdot 17$  2. a. GCD: 6; b. LCM: 360 c. LCM:  $(2^3)(3)(5^2)(7^2)$  d. GCF:  $(2^2)(5)$  3. a.  $\frac{73}{144}$  b.  $\frac{-7}{6}$  c.  $\frac{7x-6}{10}$

4.  $16y - 25$  5.  $\frac{3}{4}$  6.  $\frac{11}{84}$  7. a.  $\frac{9}{10}$  b. 4 8. a. 2; b. 1; c. 4; d. 6; e. 7; f. 5; g. 3 9. a. -9; b. 9; c. 31

10. a. F; b. F 11. a.  $\sqrt{64}$  b. 0,  $\sqrt{64}$  c. -9, 0,  $\sqrt{64}$  d. -9,  $-\frac{5}{6}$ ,  $-0.\bar{6}$ , 0, 0.25,  $\sqrt{64}$  e.  $\sqrt{5}$ ,  $\pi$

f.  $-9, -\frac{5}{6}, -0.\bar{6}, 0, 0.25, \sqrt{5}, \pi, \sqrt{64}$  g.  $-\frac{5}{6}, -0.\bar{6}, 0.25$  12. a.  $15 + 3x = \frac{1}{x} - 8$  b.  $3x - 6$  13.  $\emptyset$  14.  $(-\infty, \infty)$  15.  $\frac{21}{11}$

16. a.  $v = \frac{T+4ws}{3s+5w}$  b.  $b = \frac{2A-ha}{h}$  17. a.  $\{12, 16\}$  b.  $\{11, 12, 14, 16, 17, 18, 19\}$  18. a.  $(-\infty, \frac{-11}{2})$  b.  $(-\infty, +\infty)$  c.  $\emptyset$

19.  $(1, \infty)$  20.  $(-\infty, 2) \cup [4, \infty)$  21.  $[-1, 1)$  22.  $x + .07x = 24.80$  23. 817 24. 820