

LAGUARDIA COMMUNITY COLLEGE  
Department of Mathematics, Engineering, and Computer Science  
MAT96 ELEMENTARY ALGEBRA  
ALEKS PILOT

**LAB # 1**

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

Instructor: \_\_\_\_\_ Section: \_\_\_\_\_

You need to **show all work**. Indicate the right answer in the answer sheet. Even if you mark the right answer, but do not show work on this sheet, you will not be given credit for that question:

**Tutor problems are the examples for the unsolved problem(s) that follow them.**

1. *(Tutor) Evaluate :*

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

- a)  $\frac{1}{4}$
- b)  $-\frac{8}{11}$
- c)  $-\frac{1}{2}$
- d)  $-4$

Solution:  $\frac{4 - 3 \times 2^2}{5 + 3(3^2 - 7)} = \frac{4 - 3 \times 4}{5 + 3(9 - 7)}$  (simplifying exponents)  
 $= \frac{4 - 12}{5 + 3(2)} = \frac{-8}{5 + 6} = -\frac{8}{11}$  (Using order of operations)

Therefore, the correct answer choice is b)

2. *Evaluate :*  $\frac{12 + 3^2(7 - 9)}{3 - 4(2^2 - 7)}$

- a)  $-14$
- b)  $-\frac{2}{5}$
- c)  $-2$
- d)  $\frac{6}{15}$

3. *(Tutor) Evaluate*  $|-3| - |4 - 7|$

Solution:  $|-3| - |4 - 7| = 3 - |-3| = 3 - 3 = 0$

4. Evaluate  $|-8 + 2| - |10 - 11|$

5. *(Tutor) Multiply and reduce:*  $\frac{5}{12} \cdot \frac{24}{15}$

Solution:  $\frac{5}{12} \cdot \frac{24}{15} = \frac{5 \cdot 4 \cdot 3 \cdot 2}{3 \cdot 4 \cdot 5 \cdot 3} = \frac{2}{3}$

6. *Multiply and reduce:*  $\frac{-3}{5} \cdot \frac{20}{27}$

7. *(Tutor) Find the least common multiple (LCM) of 20, 42 and 35.*

Solution: We factor the three numbers into primes,

$$20 = 2 \cdot 2 \cdot 5, \quad 42 = 2 \cdot 3 \cdot 7 \quad 35 = 5 \cdot 7$$

and conclude that the LCM is  $2 \cdot 2 \cdot 3 \cdot 5 \cdot 7 = 12 \cdot 35 = 420$

8. *Find the least common multiple (LCM) of 16, 24 and 30.*

9. *(Tutor) Perform the operation and simplify*  $\frac{3}{5} - \frac{7}{3}$

Solution: We find the least common denominator of the two fractions, that is, the least common multiple of 5 and 3, to be  $3 \cdot 5 = 15$ . Then we build equivalent fractions with denominator 15 and subtract:

$$\frac{3}{5} - \frac{7}{3} = \frac{3 \cdot 3}{5 \cdot 3} - \frac{7 \cdot 5}{3 \cdot 5} = \frac{9}{15} - \frac{35}{15} = -\frac{26}{15}$$

10. *Perform the operation and simplify*  $\frac{6}{7} - \frac{9}{14}$

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### Extra practice problems: (Optional)

1. Evaluate:  $\frac{6 + 3^2 \times 2}{8 + 2(3^2 - 13)}$
2. Evaluate:  $-|-3| + |20 - 31|$
3. Multiply and reduce:  $\frac{-4}{15} \cdot \frac{25}{-16}$
4. Find the least common multiple (LCM) of 15, 18 and 20.
5. Perform the operations and simplify  $\frac{2}{3} - \frac{10}{2} + 1$