

Instructions: You must show all work to receive credit. Unless the problem states otherwise you should do the work by hand and check by calculator, and report exact values (no decimals). Use proper notation for your answers and be sure to answer all part of each question.

Part I. After answering these questions, you will submit your answers to the online exam form in Canvas. After submitting your answers, include the work for these questions to the Final Exam, Part 2 dropbox along with your written answers for Part II.

1. Suppose one U.S. dollar has the same buying power as 11.218 Mexican pesos. If a leather coat in Juarez has a price tag of 1677 pesos, what would be the cost in U.S. dollars? (10 points)

$$\frac{1}{11.218} = \frac{x}{1677} = 11.218x = 1677$$

$$x = \cancel{\$} 149.49$$

2. One British pound is equivalent to 1.6737 U.S. dollars. An Austin-Healy convertible costs 17,999 pounds in London – how much would that be in U.S. dollars? (8 points)

$$\frac{1}{1.6737} = \frac{17,999}{x} \quad \cancel{\$}$$

$$x = 30,124.93$$

3. Research shows that $8\frac{1}{2}\%$ of all people have a certain genetic condition. If a class at the college has 34 students, how many would have the genetic condition? (10 points)

$$2.89 \approx 3$$

4. On an employment exam, a woman answered 77 out of 120 questions correctly. What percent did she answer correctly? (2 points)

$$64.2\%$$

5. Mr. Gregg drank $1\frac{1}{2}$ cups of milk, $\frac{3}{4}$ cups of orange juice and 3 cups of coffee. What was his total fluid consumption for the day? If he does this every day, how much did he consume in a week? (8 points)

$$1\frac{1}{2} + \frac{3}{4} + 3 = \frac{3}{2} + \frac{3}{4} + 3 = \frac{6}{4} + \frac{3}{4} + \frac{12}{4} = \frac{21}{4}$$

$5\frac{1}{4}$ cups

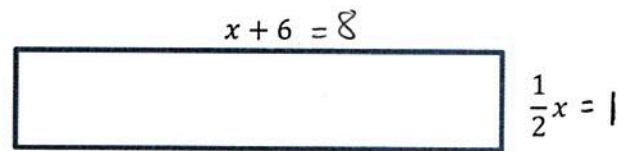
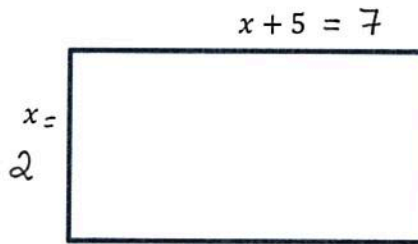
6. The two rectangles in the picture have the same perimeter. Solve the equation $2x + 2(x + 5) = 2(\frac{1}{2}x) + 2(x + 6)$, then find the dimensions of both rectangles. (16 points)

$$2x + 2x + 10 = x + 2x + 12$$

$$4x + 10 = 3x + 12$$

$$x + 10 = 12$$

$$x = 2$$



2×7 and 8×1

7. Find the Greatest Common Factor of 16 and 18. (8 points)

2

8. Find the Least Common Multiple of 16 and 18. (8 points)

$$2 \cdot 8 \quad 2 \cdot 9$$

$$2 \cdot 8 \cdot 9 = 2 \cdot 72 = 144$$

9. Consider the following set, and list the elements that belong to the set in each part below:

$$\left\{ 0.\bar{13}, -\sqrt{4}, \frac{9}{11}, \frac{1}{\sqrt{2}}, 3\pi, |-1|, \frac{0}{5}, 8, 0.25 \right\} \text{ (25 points)}$$

a. $\mathbb{R} \quad \left\{ 0.\bar{13}, -\sqrt{4}, \frac{9}{11}, \frac{1}{\sqrt{2}}, 3\pi, |-1|, \frac{0}{5}, 8, 0.25 \right\}$

b. $\mathbb{Z} \quad \left\{ -\sqrt{4}, |-1|, \frac{0}{5}, 8 \right\}$

c. $\mathbb{Q} \quad \left\{ 0.\bar{13}, -\sqrt{4}, \frac{9}{11}, |-1|, \frac{0}{5}, 8, 0.25 \right\}$

d. $\mathbb{N} \quad \left\{ 8 \right\}$

e. $\mathbb{I} \quad \left\{ \frac{1}{\sqrt{2}}, 3\pi \right\}$

10. Simplify the expression. (10 points)

$$\frac{(-2)^4 + 3\sqrt{80+1}}{-3^3 + |-2(3+1)|} = \frac{16 + 3\sqrt{81}}{-27 + |-2(4)|} = \frac{16 + 3 \cdot 9}{-27 + |-8|} =$$

$$\frac{16+27}{-27+8} = \frac{43}{-19}$$

11. Solve the equations. (12 points each)

a. $\frac{19}{9}x + \frac{2}{15} = -\frac{1}{3}x - \frac{19}{45}$

$$\cancel{45} \cdot \frac{19}{9}x + \cancel{45} \cdot \frac{2}{15} = \cancel{45} \cdot \left(-\frac{1}{3}\right)x - \cancel{45} \cdot \frac{19}{45}$$

$$95x + 6 = -15x - 19$$

$$110x = 25$$

$$x = \frac{25}{110} \quad x = \frac{5}{22}$$

b. $\frac{2x-9}{7} - 1 = \frac{4}{3}x$

$$\cancel{21} \cdot \frac{(2x-9)}{\cancel{7}} - \cancel{21}(1) = \cancel{21} \cdot \frac{4}{3}x$$

$$6x - 27 - 21 = 28x$$

$$-48 = 22x$$

$$x = \frac{-48}{22} = \frac{-24}{11}$$

$$x = \frac{-24}{11}$$

Part II. Submit your written answers to these questions into the Final Exam, Part 2 dropbox.

12. Perform the operations by hand. You must show work on these problems to receive credit. You may check your answers in a calculator, but give exact answers in all cases. (8 points each)

a.
$$\begin{array}{r} 245.129 \\ +73.896 \\ \hline \end{array}$$

319.025

b. $7\frac{4}{5} - 6\frac{8}{9} = \frac{35+4}{5} - \frac{54+8}{9} = \frac{39}{5} - \frac{62}{9} = \frac{351}{45} - \frac{310}{45} = \frac{41}{45}$

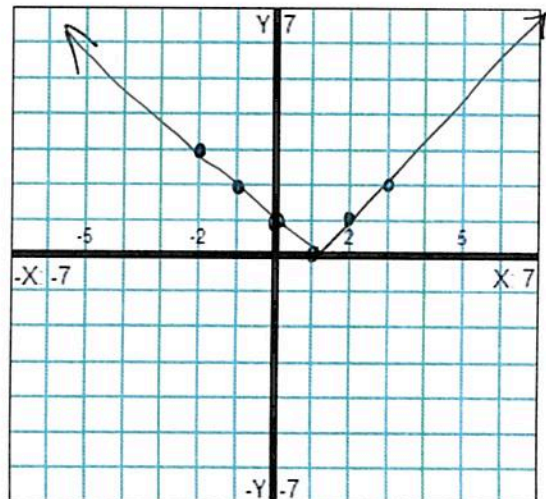
c. $3^2 + 2(11 - 6) \div 10 - 2^4(8 + 1)^2 \div 18 \times 5 \times 10^{-1} + (\sqrt{81} + 4) \times 2 =$
 $9 + 2(5) \div 10 - 16(9)^2 \div 18 \times 5 \times 10^{-1} + (9+4) \times 2 =$
 $9 + 10 \div 10 - 16(81) \div 18 \times 5 \times 10^{-1} + (13) \times 2 =$
 $9 + 1 - 1296 \div 18 \times 5 \times 10^{-1} + 26 = 10 - 72 \times 5 \times 10^{-1} + 26 =$
 $10 - \frac{360}{10} + 26 = 10 - 36 + 26 = 0$

13. Find the value of the expression $(4.6 \times 10^4) \div (6.8 \times 10^6)$ and write the result in scientific notation. (9 points)

$\frac{4.6}{6.8} \times \frac{10^4}{10^6} = 0.67647.. \times 10^{-2}$

$6.7647.. \times 10^{-3}$

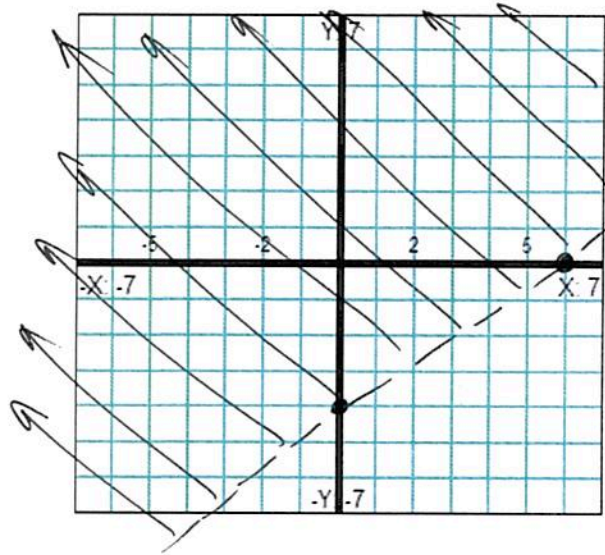
14. Graph the equation $y = |x - 1|$ on the graph on the right. Label any intercepts. Plot at least 5 points. Include values of x that are both positive and negative. (15 points)



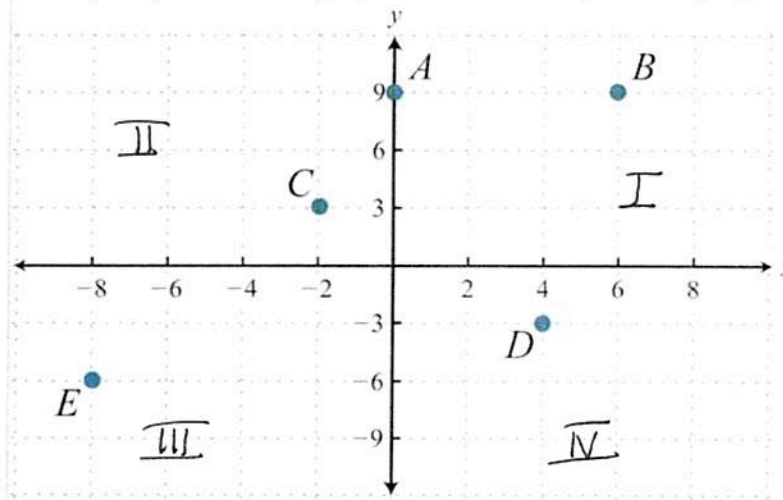
X	Y
-2	3
-1	2
0	1
1	0
2	1
3	2

15. Graph the inequality $2x - 3y < 12$ on the graph on the right. Shade appropriately. (15 points)

$$\begin{aligned} 2x &= 12 \\ x &= 6 \\ -3y &= 12 \\ y &= -4 \\ 2(0) - 3(0) &< 12 \end{aligned}$$

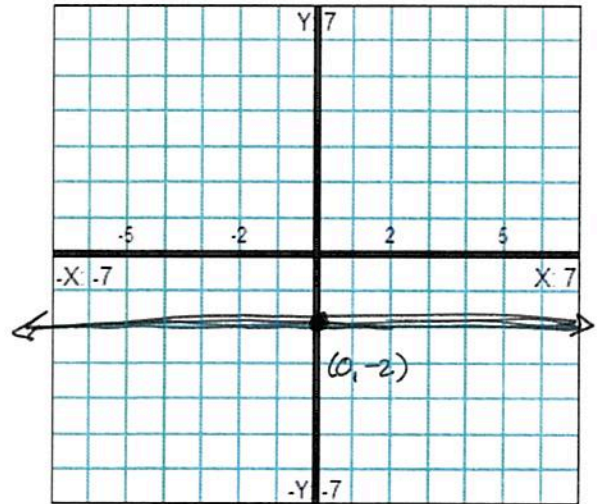


16. Identify the points on the graph and label each quadrant. (20 points)



$$\begin{aligned} A(0, 9) \\ B(6, 9) \\ C(-2, 3) \\ D(4, -3) \\ E(-8, -6) \end{aligned}$$

17. Graph the equation $y = -2$ on the graph on the right. Label any intercepts. (15 points)



18. Graph the inequalities on a number line. (6 points each)

a. $x \leq 7$



b. $-2 \leq x < 5$



19. Complete the table below. Convert to the other expression types. (18 points)

Percents	Decimals	Fractions
54%	0.54	$\frac{54}{100} = \frac{27}{50}$
3%	0.03	$\frac{3}{100}$
$47.03448\overline{00}\%$	0.4703448...	$\frac{341}{725}$

20. Write the expression 2.5631×10^{-6} in standard notation. (6 points)

0.0000025631

21. Write the number 75,414,903,000 in scientific notation. (6 points)

7.5414903×10^{10}