Math 135 – Test 2

March 8, 2019 **Name:** Solution Set

Instructor: Patricia Wrean

Allowed calculators: Sharp EL 531 and the TI BAII. **Total: 30 points**

Part I: For these short-answer questions, you do not need to show any work. Place your final answer in the space provided. Each answer is worth one point.

1. (2 points) Evaluate.

   (a) $0.37 - (-2.25)$ 2.62

   $0.37 + 2.25$

   2.62

   (-1) each mistake

   (b) -3^2 -9

   $-1 \cdot 3^2$

   $-1 \cdot 9$

   -9

2. (2 points) Evaluate. If appropriate, leave your answer in simplified fraction form.

   (a) $-12\left(\frac{1}{3}\right)^2$ $-4/3$ (or $-1\frac{1}{3}$)

   $-\cancel{12}^{4}\left(\frac{1}{\cancel{9}}\right)_{3}$

   $-4/3$

   (-1) each mistake

   (-½) negative sign error

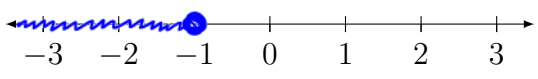
   (b) $\frac{5}{8} \div \left(-\frac{3}{10}\right)$ $\frac{-25}{12}$ (or $-2\frac{1}{12}$)

   $\frac{5}{\cancel{8}_{4}} \cdot \left(-\frac{\cancel{10}^{5}}{3}\right)$

   $-\frac{25}{12}$

   (-½) not simplified

3. (1 point) Graph $x \leq -1$ on the number line below.



(-½) open circle

(-½) incorrect shading

Part II: For these questions, show your work and write your final answer in the space provided.

4. (4 points) Simplify using the order of operations. Show your steps.

(a) $-5^2 + 20 \div 5 \times 2 - 12(4-3)^2$

-29

$-25 + 4 \times 2 - 12(1)^2$

$-25 + 8 - 12$

-29

(BEDMAS)

-1 major mistake

-½ minor mistake

(b) $4\left(\frac{1}{6}\right) - \frac{2}{3} \div \frac{1}{2}$

$-2/3$

$\frac{4}{6} - \frac{2}{3} \cdot \frac{2}{1}$

$\frac{2}{3} - 4/3$

$-2/3$

5. (3 points) Remove brackets and combine like terms.

$5(x^2-2) + 3[2-(4-x^2)]$

$8x^2 - 16$

$5x^2 - 10 + 3[2 - 4 + x^2]$

$5x^2 - 10 + 3[-2 + x^2]$

$5x^2 - 10 - 6 + 3x^2$

$8x^2 - 16$

6. (2 points) Evaluate the following for $x = -4$ and $y = 5$.

$x^2 - 3xy$

76

$(-4)^2 - 3(-4)(5)$

$16 + 12 \cdot 5$

$16 + 60$

76

7. (3 points) Solve the following equation. Check your answer, showing your work.

$0.1x - 7 = 5$

$x = 120$

$0.1x = 12$

$x = \frac{12}{0.1}$

$= 120$

check:

$0.1(120) - 7 = 5$

$12 - 7 = 5$

$5 = 5$ ✓

no check:

(-1)

8. (6 points) Solve the following equations.

(a) $-3(y+5)+2 = 4(y+6)-9$

$y = -4$

$-3y - 15 + 2 = 4y + 24 - 9$

$-3y - 13 = 4y + 15$

$-13 - 15 = 4y + 3y$

$-28 = 7y$

$y = \frac{-28}{7} = -4$

(b) $\frac{3-x}{2} - 1 = \frac{x-1}{3}$

$x = 1$

$6\left(\frac{3-x}{2} - 1\right) = \left(\frac{x-1}{3}\right) \cdot 6$

$3(3-x) - 6 = 2(x-1)$

$9 - 3x - 6 = 2x - 2$

$-3x + 3 = 2x - 2$

$3 + 2 = 2x + 3x$

$5 = 5x$

$x = 1$

9. (2 points) Solve for y.

$ax + by = c$

$by = c - ax$

$y = \frac{c - ax}{b}$

$y = \frac{c - ax}{b}$

10. (5 points) Solve the following inequalities. Write each solution on the line and then graph it on the number line.

(a) $8x + 1 \geq 10x - 3$

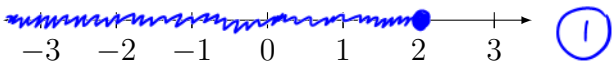
$1 + 3 \geq 10x - 8x$

$4 \geq 2x$

$2 \geq x$

$x \leq 2$ (2)

$x \leq 2$



(1)

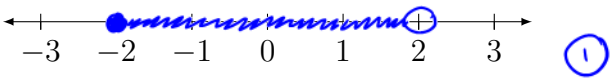
(b) $-12 \leq 3x - 6 < 0$

$+6 \quad +6 \quad +6$

$\frac{-6}{3} \leq \frac{3x}{3} < \frac{6}{3}$

$-2 \leq x < 2$ (2)

$-2 \leq x < 2$



(1)