

MATH 103
FALL 2014
EXAM 1

NAME:

1. 10 pts. each Solve each equation.

 - (a) $5y - (2y - 10) = 25$
 - (b) $-\frac{5}{2}x + \frac{1}{2} = -18$
2. 10 pts. Solve for I : $T = \frac{3}{10}(I - 12,000)$.
3. 10 pts. Planet Ceti Alpha V has three times as many moons as Ceti Alpha VI, and Ceti Alpha VII has two more than twice as many moons as Ceti Alpha VI. If the three planets have a total of 26 moons, how many moons does each planet have?
4. 15 pts. Hilbert Furniture discounts furniture 8% to customers paying cash. Riemann paid \$1007.40 cash for a roll-top desk. What was the original price of the desk?
5. 15 pts. How much of an 80% dye solution must be added to 8 liters of a 30% dye solution to increase the solution's concentration to 65%?
6. 10 pts. each Solve each inequality, then state the solution set in interval notation. Also graph the solution set.

 - (a) $2 - 3x < -25$
 - (b) $-11 \leq 2t - 5 \leq 7$
7. 10 pts. each Solve each compound inequality, then state the solution set in interval notation.

 - (a) $x + 5 \leq 20$ and $x - 3 \geq -10$
 - (b) $4x < x + 24$ or $2x - 1 > 19$
8. 10 pts. Solve the absolute value equation $|7 - 3x| = 16$.
9. 10 pts. each Solve each absolute value inequality, then state the solution set in interval notation.

 - (a) $|3r - 1| > 11$
 - (b) $|z - 2| + 6 \leq -2$
10. 10 pts. Find the x - and y -intercepts for $5x + 2y = 10$, then graph the equation.
11. 10 pts. Find the midpoint of the segment with the endpoints $(2, -3)$ and $(6, -8)$.

12. 10 pts. Determine whether the lines given by $2x = y + 3$ and $2y + x = 3$ are parallel, perpendicular, or neither.
13. 10 pts. Find an equation of the line containing the points $(-2, 6)$ and $(-8, 10)$. Write the equation in standard form and also in slope-intercept form.
14. 10 pts. Find an equation of the line through $(-2, 8)$ and parallel to $5x + 3y = 12$. Write the equation in standard form and also in slope-intercept form.
15. 10 pts. each Simplify each, writing the answer with only positive exponents.
- (a) $-4r^{-2}$
- (b) $(v^5)^{-4}v^8$
- (c) $\frac{(2k)^2m^{-6}}{(km)^{-3}}$