

MATH 103  
SPRING 2012  
EXAM 1

NAME:

1. 10 pts. each Solve each equation.

  - (a)  $-3s + 5s - 8 + 7 = 6s - 5$
  - (b)  $2x + 3(x - 4) = 2(x - 3)$
2. 10 pts. Solve for  $B$ :  $\mathcal{A} = \frac{1}{2}h(b + B)$ .
3. 10 pts. At the end of the day Venn di Agram found that the total cash register receipts at the Pierogi Purgatory where he works amounted to \$2378. This included a 7% sales tax charged. Find the amount of the tax, rounded to the nearest penny.
4. 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?
5. 15 pts. How many liters of an 18% alcohol solution must be mixed with 20 liters of a 68% solution to obtain a 60% solution? Round to the nearest tenth of a liter.
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)  $|y + 5| - 6 \leq -1$
  - (c)  $|z - 9| < -5$
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 passing through the points  $(-2, -3)$  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  $(-2, -3)$  and parallel to  $4x - y = 7$ . 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)  $2y^{-5}$
  - (b)  $(t^5)^{-3}t^7$