138 Exam 1
Practice

1. Solve for x: $3[2x-(x+7)]=5(x-3)$.

2. Solve for x: $x+8 = 2(x-2) - x$.

3. The per captia personal income in the US from 1998 to 2005 can be approximated by the linear equation $y=944.7t + 19,898$ for $8 \leq t \leq 15$, where t represents the year, with $t=8$ corresponding to 1998. Used the model to estimate the year in which the per capital personal income was $32,000.

4. A total of $32,000 is invested in two municipal bonds that pay 5.75% and 6.25% simple interest. The total annual interest is $1930. How much is invested in each bond? Write your answers in the blanks below.

   _____ invested in bond paying 5.75%

   _____ invested in bond paying 6.25%

5. To get a B in a course, you need an average of 80% or better on the 3 tests. The first two tests are worth 150 points each and the third is worth 200 points. Your scores on the first two test were 134 and 142. What must you score on the third test to get a B in the course?

6. Solve for x: $11x^2+33x=0$.

7. Solve for x: $12x=x^2+27$.

8. Solve for x: $4x^2-4x-4=0$.

9. The demand equation for a product is p=60- 0.0004x where p is the price per unit and x is the number of units sold. The total revenue R for selling x units is given by R=xp. How many units must be sold to produce a revenue of $100,000?\

10. Solve for r: $(r-5)^{2/3}=16$.

11. Solve for z: $\frac{1}{z}-\frac{1}{z+1}=3$.

12. Solve for x: $|2x-1|=7$.

13. Solve for x: $x^4+2x^3=-x^2$.

14. Find the midpoint and distance between (2,-3) and (-4,0).

15. The endpoints of the diameter of a circle are (-5,3) and (3,-3).

    a. Find the center of the circle.

    b. Find the radius of the circle.

    c. Find the standard form of the equation of the circle.

16. Sketch the circle whose equation is $(x+3)^2+(y-2)^2=9$.

17. Consider the equation $y=x^2-2x-3$.

    a. Find the x-intercepts.

    b. Find the y-intercepts.

18. Find the slope and y-intercept of $2x+3y=6$.

    Slope:_____

    y-intercept:_____

19. Find the equation of the line passing through the points (4,3) and (-4,-4). Put your answer in slope-intercept form.

20. Consider the following equation: -9x+7y=1

a. Find the slope of a line parallel to the equation above.

b. Find the slope of a line perpendicular to the equation above.

21. Find the equation of the line parallel to x=4 and passing through (1,3).

21. On a yardstick you notice that 13 inches is the same length as 33 centimeters.

a. Use this information to find a mathematical model that relates centimeters to inches.

b. Use the model to find the number of centimeters equivalent to a length of 30 inches.

22. If you notice that a $8.30 shampoo bottle ends up costing $9.01 at the register, write an equation for how much you'd expect in item labeled as x dollars to cost.