PreCalc Test 1.1, 1.2, A.3 Review Worksheet   Name: _____ Date: _____ Period: _____

Factor each of the following. Show all work.

1) $x^2 - 3x + 2$

$(x-2)(x-1)$

2) $3x^2 + x - 14$

$(3x+7)(x-2)$

3) $9x^2 + 10x + 1$

$(9x+1)(x+1)$

Solve for x by completing the square

4) $x^2 + 8x - 20 = 0$

$x = -10,\ 2$

5) $x^2 + 5x + \dfrac{5}{4} = 0$

$x = -\dfrac{5}{2} \pm \sqrt{5}$

Solve for x.

6) $x^2 = x + 12$ $x = -3,\ 4$

7) $|7x - 5| - 30 = 0$ $x = 5,\ -\dfrac{25}{7}$

8) $\sqrt{2x+8} + 15 = 0$ *no solution*

9) $\sqrt{x-2} - 8 = 0$ $x = 66$

10) $-2x^2 - 4x + 2x^3$ $x = 0,\ x = 2,\ x = -1$

11) $4(x+3) - 3 = 2(4 - 3x) - 4$ $x = -\dfrac{1}{2}$

True or False. If false fix the problem.

12) $\dfrac{21x}{4} - \dfrac{(y+5)}{2} = \dfrac{21x - 2y - 5}{4}$ $\dfrac{21x - 2y - 10}{4}$

13) $\dfrac{a}{4} + \dfrac{8}{b} = \dfrac{a+8}{4+b}$ $\dfrac{ab + 32}{4b}$

14) Find the midpoint and distance between the two points. Give the distance as a decimal rounded to 2 places.
$A(5,\ -8)\ B(-4,\ 2)$

$d = \sqrt{181} \approx 13.45$ $Midpoint : \left(\dfrac{1}{2},\ -3\right)$

15) A zip line goes from the top of a tower into a lake. The tower is 50 feet tall and the point where the line enters the lake is 150 feet away. How long is the zip line?
$158\ feet$

Find the x- and y- intercepts

16) $y^2 = x + 1$

$(-1, 0),\ (0, 1),\ (0, -1)$

17) $y = 6x^2 + x - 2$

$\left(\dfrac{1}{2}, 0\right),\ \left(-\dfrac{2}{3}, 0\right),\ (0, -2)$

18) $y = 12x^2 + 5x - 2$

$\left(\dfrac{1}{4}, 0\right),\ \left(-\dfrac{2}{3}, 0\right),\ (0, -2)$

19) $y = 6x^2 - 11x + 4$

$\left(\dfrac{1}{2}, 0\right),\ \left(\dfrac{4}{3}, 0\right),\ (0, 4)$

20) $y = |3x + 5|$

$\left(-\dfrac{5}{3}, 0\right),\ (0, 5)$

21) $y = |8x - 7| - 4$

$\left(\dfrac{11}{8}, 0\right),\ \left(\dfrac{3}{8}, 0\right),\ (0, 3)$

Determine the quadrant(s) in which (x, y) is located so that the condition(s) is (are) satisfied.

22) $y > 4,\ x < 8$ I, II

23) $y < -2,\ x < -5$ III

24) $y > 4,\ x > 12$ I

25) An airplane flies directly from San Francisco to San Diego, which is 400 miles south and 300 miles east. Draw a picture that represents the situation. How far does the plane fly?
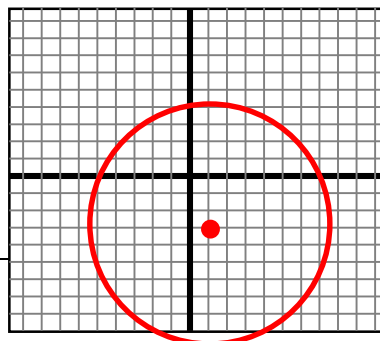$500\ miles$

26) Write the equation of the circle in standard form given that two endpoints of a diameter are (–1, 4) and (3, –10)
$(x-1)^2 + (y+3)^2 = 53$

27) Identify the center and radius of the circle in #26. Sketch the circle.

$Center : (1,\ -3)$

$radius : \sqrt{53} \approx 7.3$

28) Complete the square to write the equation of the circle in standard form. Identify the center and radius then sketch the circle. $x^2 - 20y - 20 + 2x + y^2 = 0$

$(x+1)^2 + (y-10)^2 = 121$ $Center : (-1,\ 10)$

$radius : \sqrt{121} = 11$