MATH 244/GRACEY
1.3-1.4 PRACTICE

Name_____

Solve.

1) $a^2 + 8a + 15 = 0$

2) $(7x - 9)(7x - 3) = 0$

3) $24x + 3x^2 = 0$

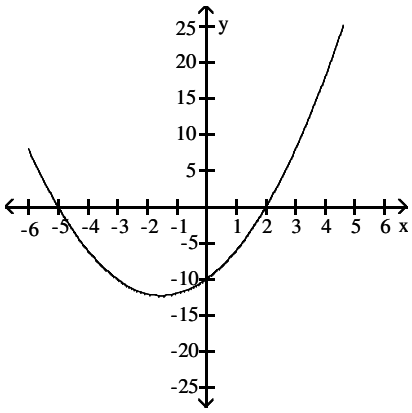
4) $16b^2 + 56b + 45 = 0$

5) $10a^3 + 8a^2 + 25a + 20 = 0$

6) $9x^3 + x^2 - 9x - 1 = 0$

Use the given graph to find the x–intercepts.

7)



Solve the equation.

8) $3x^2 - 16x - 12 = 0$

9) $x^2 - 14x + 85 = 0$

10) $x^2 = 15 + 3x$

11) $4x^2 + 4 = x$

For the following equation consider the discriminant of the quadratic formula to determine whether imaginary solutions exist.

12) $s^2 - 2s - 3 = 0$

13) $w^2 + 3w + 4 = 0$

Find the zeros of the function algebraically. Give exact answers.

14) $f(x) = x^2 - 7x + 1$

15) $f(x) = x^2 - 5x - 5$

Solve.

16) $z^4 - 9z^2 + 18 = 0$

17) $(4p + 1)^2 = -7(4p + 1) - 12$

18) $\sqrt{x} = 12 - x$

19) $m^{2/7} + 2m^{1/7} - 15 = 0$

20) $x^4 + 5 = 6x^2$

Solve the problem.

21) How long would it take an object to fall freely from the top of a tower 1520 ft tall?

22) The length of a rectangle is three inches more than the width. The area of the rectangle is 418 inches. Find the width of the rectangle.

23) The area of a square is numerically 3 less than the perimeter. Find the length of the side, if the side is greater than 1.

24) Bill can row 3 mph in still water. It takes him 3 hours 36 minutes to go 3 miles upstream and return. Find the speed of the current.

25) Amy travels 450 miles at a certain speed. If the car had gone 15 mph faster, the trip would have taken 1 hour less. Find Amy's speed.

Solve.

26) $\frac{2}{y+2} - \frac{5}{y-2} = \frac{7}{y^2-4}$

27) $\frac{1}{2} + \frac{1}{5} = \frac{1}{t}$

28) $\frac{x+3}{7} - \frac{x-5}{2} = 4$

29) $\sqrt{5q+6} = 6$

30) $\sqrt[3]{3x+7} = -2$

31) $x = \sqrt{x+13} + 7$

32) $\sqrt{2x+3} - \sqrt{x+1} = 1$

33) $x^{1/5} = 4$

1) –3, –5
2) $\frac{9}{7}, \frac{3}{7}$
3) 0, –8
4) $-\frac{5}{4}, -\frac{9}{4}$
5) $-\frac{4}{5}$
6) $1, -1, -\frac{1}{9}$
7) –5, 2
8) $-\frac{2}{3}$, 6
9) 7 ± 6i
10) $\frac{3 \pm \sqrt{69}}{2}$
11) $\frac{1 \pm i\sqrt{63}}{8}$
12) No
13) Yes
14) $\frac{7 \pm 3\sqrt{5}}{2}$
15) $\frac{5 \pm 3\sqrt{5}}{2}$
16) $\pm\sqrt{6}, \pm\sqrt{3}$
17) $-\frac{5}{4}, -1$
18) 9
19) 2187, –78,125
20) $-1, 1, -\sqrt{5}, \sqrt{5}$
21) About 9.7 sec
22) 19 inches
23) 3 units
24) 2 mph
25) 75 mph
26) –7
27) $\frac{10}{7}$
28) 15
29) 6
30) – 5
31) 12
32) 3, –1
33) 1024