Test #2 Extra Practice
Math 11000

1) Solve and graph the inequality. Write the solution set using interval notation. 1) _____

$$-\frac{3}{4}x \le -\frac{6}{7}$$

2) Solve and graph the inequality. Write the solution set using interval notation. 2) _____

$7x + 1 > 36$

3) Solve and write your answer in interval notation. 3) _____

$4x + 7(3x - 3) \le 9 - 5x$

4) Find the domain of the function 4) _____

$f(x) = \sqrt{7 - x}$

5) A salesperson has two job offers. Company A offers a weekly salary of $450 plus commission of 10% of sales. Company B offers a weekly salary of $900 plus commission of 5% of sales. What is the amount of sales above which Company A's offer is the better of the two? 5) _____

6) Solve the inequality. Write your answer in interval notation. 6) _____

$11 \le 9x - 7$ and $2x + 1 < 13$

7) Solve the inequality and graph the solution set. 7) _____

$-34 \le 4x - 10$ and $7x - 5 < -19$

8) Solve the inequality. Write your answer in interval notation. 8) _____

$12x - 8 < 4x$ or $-2x \le -6$

9) Solve the inequality and graph the solution set. 9) _____

$12x - 8 < 4x$ or $-4x \leq -12$

10) Given the function $f(x) = 8x + 10$, find all value(s) such that $-22 < f(x) \leq 10$ 10) _____

11) Graph. $4x + y < -2$ 11) _____

12) Graph. $2x + 4y \geq -8$ 12) _____

13) Graph the system of linear inequalities. 13) _____

$2x + y \leq 4$
$y - 1 < 0$

14) Graph the system of inequalities. Find the coordinates of the vertices. 14) _____

$3y - x \leq 9$,
$y + 2x \leq 10$,
$y \geq 0$

15) Find $P(-4)$ when $P(x) = -3x^2 + 5x + 12$ 15) _____

16) Total profit is defined as total revenue minus total cost. R(x) and C(x) are the revenue and cost from the sale of x televisions. If $R(x) = 280x - 0.9x^2$ and $C(x) = 4000 + 0.7x^2$, find the profit from the sale of 90 televisions. 16) _____

17) Simplify: $(9x^3 + 2x^2) - (8x^2 - 9x - 1) - (5x^3 + x - 7)$ 17) _____

18) Multiply: $-6ab(-2a^2b - 3ab^2)$ 18) _____

19) Multiply: $(3x + 2)(x + 8)$ 19) _____

20) Simplify: $(9m + 1)^2$ 20) _____

21) Let $f(x) = 5x - 3$. Find $[f(x)]^2$ 21) _____

22) Let $f(x) = 5x - 4$ and $g(x) = 5x + 4$. Find $(f \bullet g)(x)$ 22) _____

23) Factor: $24m^9 - 54m^4 + 60m^2$ 23) _____

24) Factor: $-2x^2 + 8x - 56$ 24) _____

25) Factor: $30x^2 - 12x - 25x + 10$ 25) _____

26) Factor: $12y^2 + 54y - 30$ 26) _____

27) Factor: $5x^3 + 5x^2 - 60x$ 27) _____

28) Factor: $x^3 - x^2 - 56$ 28) _____

29) Factor: $36x^2 - 96x + 64$ 29) _____

30) Factor: $16x^2 - 9$ 30) _____

31) Factor: $2x^3 + 6x^2 - 32x - 96$ 31) _____

32) Solve for x: $49x^2 - 16 = 0$ 32) _____

33) Solve for x: $6x^2 - 17x - 3 = 0$ 33) _____

34) Solve for x: $10x^2 - 12x = 0$ 34) _____

35) Let $g(x) = x^2 + 6x$. For what value(s) of x is $g(x) = -8$. 35) _____

36) The length of a rectangular frame is 5 cm more than the width. The area inside the frame is 50 square cm. Find the width of the frame. 36) _____

37) A triangular garden has an area of 120 square feet. The height is 8 feet more than the base. Find the base of the garden. 37) _____

38) If an object is thrown upward from the ground with an initial velocity of 112 ft/sec, its height after t sec is given by $h = 112t - 16t^2$. Find the number of seconds before the object hits the ground. 38) _____

39) A rock falls from a tower that is 400 feet high. As it is falling, its height is given by the formula $h = 400 - 16t^2$. How many seconds will it take for the rock to hit the ground (h=0)? Round to the nearest tenth of a second. 39) _____

40) For $f(x) = \sqrt{4x - 14}$, find f(–9). 40) _____

41) For $f(x) = -\sqrt{(x + 1)^2}$, find f(–3). 41) _____

42) Simplify. Assume that variables can represent any value.: $\sqrt{4x^2 + 12x + 9}$ 42) _____

43) For $f(x) = \sqrt[3]{2x - 1}$, find f(–13). 43) _____

44) Find the domain of the radical function, $f(x) = \sqrt{x - 9}$ 44) _____

45) Simplify: $16^{5/4}$ 45) _____

46) Re–write with positive exponents: $\frac{2x}{\sqrt[5]{y}}$ 46) _____

47) Simplify: $\frac{y^{2/3}}{y^{1/6}}$ 47) _____

48) Simplify: $(x^{1/5})^{4/7}$ 48) _____

49) Simplify: $z^{-2/7} \cdot z^{3/7}$ 49) _____

50) Simplify: $\sqrt[12]{x^8}$ 50) _____

51) Simplify: $\sqrt[7]{x^{14}}$ 51) _____

52) Simplify: $\sqrt[4]{\sqrt[5]{x}}$ 52) _____

53) Simplify by factoring: $\sqrt{54}$ 53) _____

54) Multiply and Simplify: $\sqrt{15}\sqrt{48}$ 54) _____

55) Rational the denominator: $\sqrt[3]{\frac{4}{5}}$ 55) _____

56) Rational the denominator: $\sqrt{\frac{81}{20}}$ 56) _____

57) Solve: $2x^2 = 26$ 57) _____

58) Solve. $x^2 + 10x - 23 = 0$ *Round results to the nearest thousandth.* 58) _____

59) Let $f(x) = (x - 6)^2$. Find x so that $f(x) = 23$. 59) _____

60) Let $f(x) = x^2 + 14x + 49$. Find x so that $f(x) = 81$. 60) _____

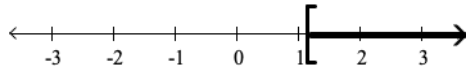
61) Let $f(x) = x^2 + 4x$. Find x so that $f(x) = 3$ 61) _____

62) Find the x–intercepts: $f(x) = x^2 + 4x - 3$ 62) _____

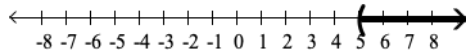
63) Solve: $4x^2 = -6x - 1$ 63) _____

64) Let $f(x) = 5x^2 - 9x + 3$. For what values of x is $f(x) = 0$. *Round to the nearest thousandth.* 64) _____

1) $\left[\frac{8}{7}, \infty\right)$



2) $(5, \infty)$



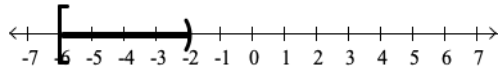
3) $(-\infty, 1]$

4) $\{x \mid x \leq 7\}$

5) \$9000

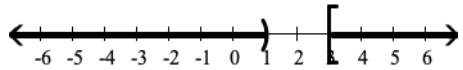
6) [2, 6)

7)

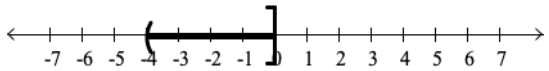


8) $(-\infty, 1) \cup [3, \infty)$

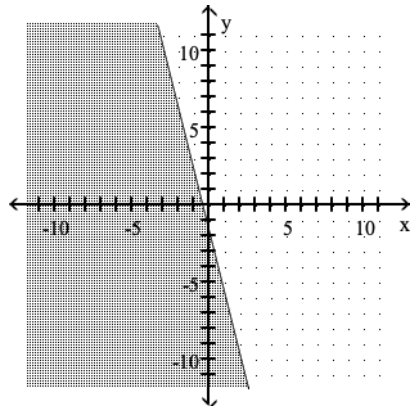
9)



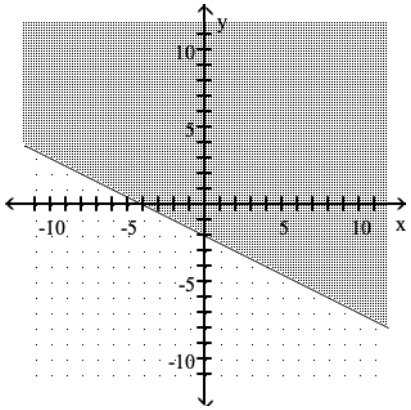
10) (−4, 0]



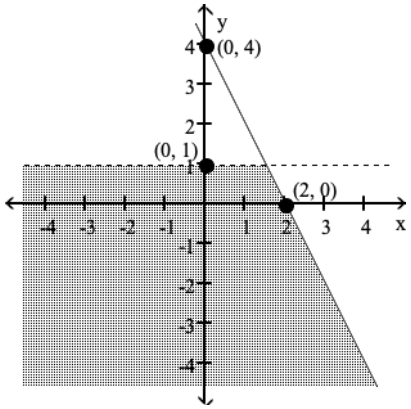
11)



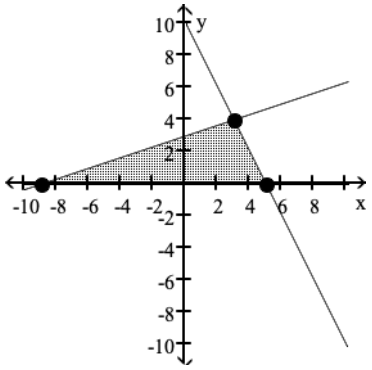
12)



13)



14)



(–9, 0) , (3, 4) , (5, 0)

15) –56

16) $8240

17) $4x^3 - 6x^2 + 8x + 8$

18) $12a^3b^2 + 18a^2b^3$

19) $3x^2 + 26x + 16$

20) $81m^2 + 18m + 1$

21) $25x^2 - 30x + 9$

22) $25x^2 - 16$

23) $6m^2(4m^7 - 9m^2 + 10)$

24) $-2(x^2 - 4x + 28)$
25) $(6x - 5)(5x - 2)$
26) $6(2y - 1)(y + 5)$
27) $5x(x - 3)(x + 4)$
28) Prime
29) $4(3x - 4)^2$
30) $(4x + 3)(4x - 3)$
31) $2(x + 4)(x - 4)(x + 3)$
32) $\frac{4}{7}, -\frac{4}{7}$
33) $-\frac{1}{6}, 3$
34) $\frac{6}{5}, 0$
35) $\{-2, -4\}$
36) 5 cm
37) 12 feet
38) 7 sec
39) 5 sec
40) Does not exist
41) -2
42) $|2x + 3|$
43) -3
44) $[9, \infty)$
45) 32
46) $\frac{2x}{y^{1/5}}$
47) $y^{1/2}$
48) $x^{4/35}$
49) $z^{1/7}$
50) $\sqrt[3]{x^2}$
51) x^2
52) $\sqrt[20]{x}$
53) $3\sqrt{6}$
54) $12\sqrt{5}$
55) $\frac{\sqrt[3]{100}}{5}$
56) $\frac{9\sqrt{5}}{10}$
57) $\pm\sqrt{13}$
58) 1.928, -11.928

59) $6 + \sqrt{23}, 6 - \sqrt{23}$

60) $-16, 2$

61) $-2 \pm \sqrt{7}$

62) $(-2 + \sqrt{7}, 0), (-2 - \sqrt{7}, 0)$

63) $\frac{-3 \pm \sqrt{5}}{4}$

64) 1.358, 0.442