Math 053 Practice Final A

Revised June 2014

1. Complete all of your work on separate paper.
2. Write your final answers in the space provided on the test.
3. Include units in your answers when appropriate.
4. Reduce fractions and round decimals to the tenth place, in your answers, unless otherwise indicated.

Simplify:

1) $(8 + 6)[6 + (3 + 7)]$ 1) _____

2) $[4(x - 3) - 7] + [5(x - 1) + 5]$ 2) _____

3) $7 + 18 \cdot 27 - (-25)$ 3) _____

4) $4 + 3^2(13) - (-28)$ 4) _____

5) $\frac{5 \cdot (2 + 7) + 5 \cdot 5}{5 \cdot (3 - 1)}$ 5) _____

Solve the equation:

6) $2x - 5 + 9x - 9 = 4x - 13x + 12$ 6) _____

7) $-5b + 3 = -5 + 10b$ 7) _____

8) $5x - 5 - 6x - 9 = 2x + 3x + 16$ 8) _____

9) $\frac{1}{2}(t + 4) - 6 = \frac{3}{4}(t - 2)$ 9) _____

Solve for the indicated letter :

10) $a + b = s + r$ solve for r 10) _____

11) $2a + 8b = 12$ solve for a 11) _____

12) $-8a - 7 \geq -7a - 5$ 12) _____

13) $\frac{x}{2} + 6 \leq 10$ 13) _____

Solve the problem:

14) Jennifer's annual salary increased from $23,000 to $45,000 over the last five years. Find the percent increase in her salary during this time period. 14) _____

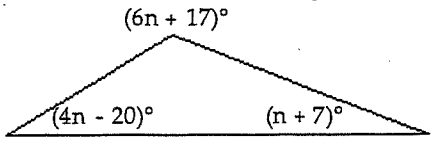
15) A local electronics store advertised a DVD recorder for $295.50. This was a 58% reduction from the original price. What was the original price? 15) _____

16) In order for a chemical reaction to take place, the Fahrenheit temperature of the substances must be at least 185.96°F. Find the Celsius temperatures at which the reaction may occur. Use inequality notation and the formula $(F = \frac{9}{5}C + 32)$ 16) _____

17) If the formula R = -0.037t + 50.1 can be used to predict the world record in the 400-meter dash t years after 1925, for what years will the world records be 47.9 seconds or less? 17) _____

18) If the first and third of three consecutive odd integers are added, the result is 45 less than five times the second integer. Find the third integer. 18) _____

19) Find the measure of each angle in the triangle. 19) _____



20) Find the length of a rectangular lot with a perimeter of 84 meters if the length is 4 meters more than the width. (P = 2L + 2W) 20) _____

21) CopyMart charges $25 plus 41 cents per copy to produce promotional brochures. How many brochures can Steve purchase if he has a budget of $69.28? 21) _____

22) If Gloria received a 8 percent raise and is now making $23,760 a year, what was her salary before the raise? 22) _____

23) At the end of the day, a storekeeper had $1498 in the cash register, counting both the sale of goods and the sales tax of 7%. How much of this total is tax? 23) _____

Find the slope, if it exists, of the line containing the points:

24) (-6, 9), (-7, 1) 24) _____

25) (-9, -7), (-9, 3) 25) _____

Simplify using only positive exponents in the answer :

26) $(-3x^3y)^4$ 26) _____

27) $\left(\frac{b^5}{2b}\right)^{-2}$ 27) _____

Simplify:

28) $(18s + 17t) + (4t - 13s + 1) + (-6s - 9t + 5)$ 28) _____

29) $(3x^2 + 4xy + y^2) + (2x^2 + 7xy - y^2) + (x^2 + xy - y^2)$ 29) _____

Subtract:

30) $(-8a^5 + 4a^4) - (-13a^5 - 20a^4)$ 30) _____

31) $(6x^6 + 2x^8 - 5 - 2x^7) - (4 + 6x^7 + 7x^8 - 9x^6)$ 31) _____

Multiply:

32) $(13p + 7)(13p - 7)$ 32) _____

33) $(x^2 + 0.3))(x^2 - 0.3)$ 33) _____

34) $(w - z)(w^2 + z^2 + 5wz)$ 34) _____

35) $(2a + 3 - 3b)(2a + 3 + 3b)$ 35) _____

Divide:

36) $(28x^2y^3 - 40x^3 + 12xy) \div 4x^3y$ 36) _____

37) _____

Factor:

37) $162 - 2x^2$ 38) _____

38) $25x^4 - 121$ 39) _____

Factor:

40) $x^2 + 2xy - 35y^2$ 40) _____

41) $x^2 + 3xy - 154y^2$ 41) _____

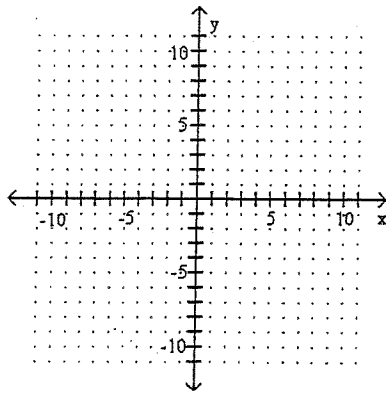
42) Find the equation of the line with a slope of -5 and y intercept of $(0, \frac{3}{4})$

43) Find the equation of the line containing the two points (-1,5) and (4,2)

Graph the equation and identify the y-intercept.

44) $y = \frac{5}{2}x - 3$

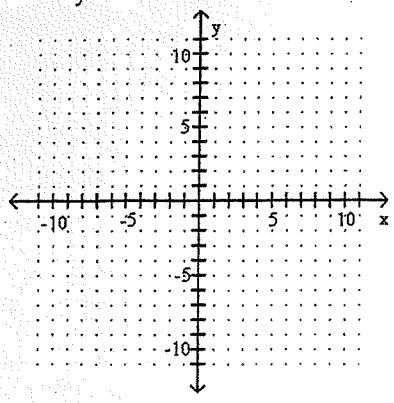
44) _____



y - intercept: (,)

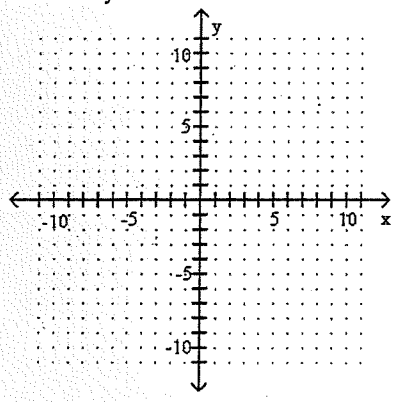
Find and use the intercepts to graph the equation.

45) $4x - 8y = 24$ 45) _____



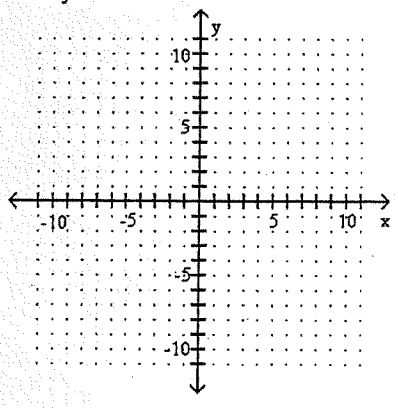
x - intercept: (,) y - intercept (,)

46) $4x - 5 = y$ 46) _____



x - intercept: (,) y - intercept (,)

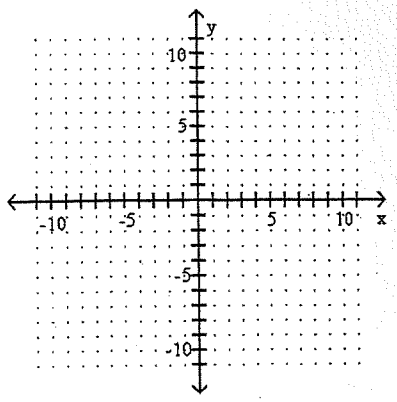
47) $-30y = 30 + 5x$ 47) _____



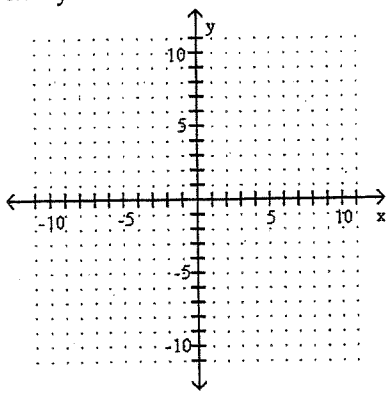
x - intercept: (,) y - intercept (,)

Graph :

48) $8x + 20 = 0$ 48) _____



49) $6x - y = 0$ 49) _____



Solve the problem:

50) Over one particular stretch of road, the Whitepoint Highway rises 533 ft over a horizontal distance of 3900 ft. Find the grade of the road. 50) _____

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Answer Key
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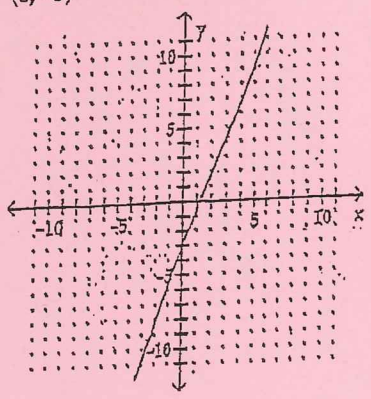
1) 224
2) $9x - 19$
3) 518
4) 149
5) 7
6) $\frac{13}{10}$ or 1.3
7) $\frac{8}{15}$
8) $x = -5$
9) $t = -10$
10) $r = a + b \div s$
11) $a = -4b + 6$
12) $\{a \mid a \leq -2\}$
13) $\{x \mid x \leq 8\}$
14) 95.7%
15) \$703.57
16) $C \geq 85.5°$
17) 1985 or after.
18) 17
19) 44°, 113°, 23°
20) 23 m
21) 108
22) \$22,000
23) \$98
24) 8
25) Undefined
26) $(-3)^4x^{12}y^4$ or $81x^{12}y^4$
27) $\frac{4}{b^8}$
28) $-s + 12t + 6$
29) $6x^2 + 12xy - y^2$
30) $5a^5 + 24a^4$
31) $-5x^8 - 8x^7 + 15x^6 - 9$
32) $169p^2 - 49$
33) $x^4 - 0.09$
34) $w^3 - 4wz^2 + 4w^2z - z^3$
35) $+4a^2 + 12a - 9b^2 + 9$
36) $\frac{7y^2}{x} - \frac{10}{y} + \frac{3}{x^2}$
37) $2(9-x)(9+x)$
38) $(5x^2-11)(5x^2+11)$
40) $(x + 7y)(x - 5y)$
41) $(x + 14y)(x - 11y)$
42) $y = -5x + \frac{3}{4}$ or $4y = -20x + 3$
43) $y = \frac{-3}{5}x + 4\frac{2}{5}$ or $y = -0.6x + 4.4$

44) (0, -3)



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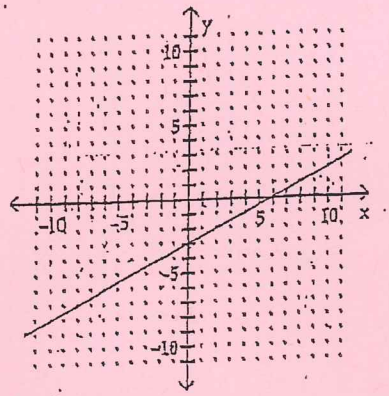
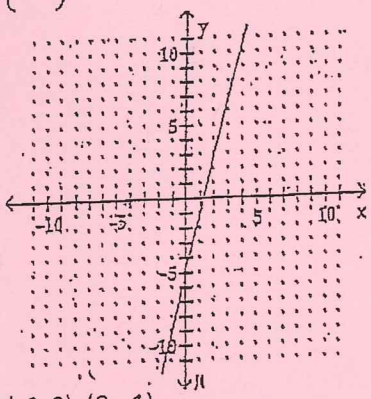
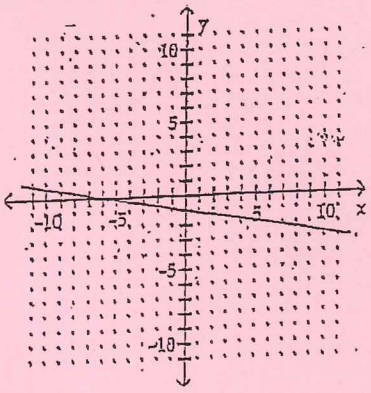
45) (6,0) (0, -3)



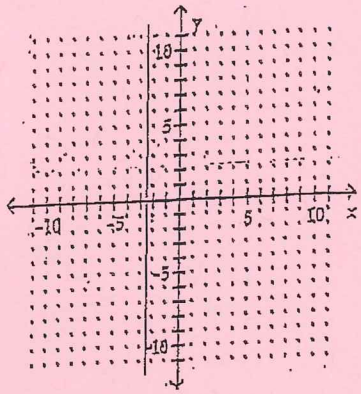
46) $\left(\frac{5}{4}, 0\right)$, (0, -5)



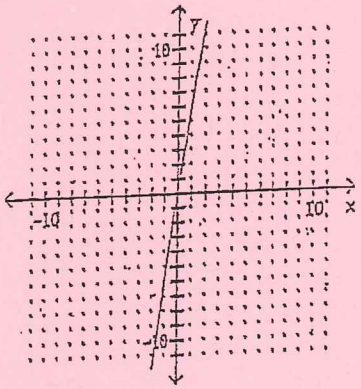
47) (-6, 0) (0, -1)



48)



49)



50) 13.7%