Suffolk University
Department of Mathematics and Computer Science
Review Sheets for the Placement Exam

Signed Numbers

Simplify:

1) $-7+4=$

2) $15-(-3)=$

3) $-4-5=$

4) $-13(-3)=$

5) $-7(4)=$

Order of Operations

Evaluate:

6) $6-(-3(2+4))=$

7) $18-4(4-7)=$

8) $\dfrac{15-5(3)}{6-4}=$

Absolute Values

Evaluate:

9) $|16| + |4| =$

10) $|-2-1| - |6-2| =$

11) $4 \cdot |3-4| + |5| =$

Exponents

Evaluate:

12) $8^0 =$

13) $5^2 =$

14) $2x^2 \cdot x =$

15) $(x^3)^2 =$

Radicals(square roots)

Simplify:

16) $\sqrt{81}$ =

17) $(\sqrt{5})^2$ =

True or false?

18) $3\sqrt{9} < 20$

19) $5\sqrt{5} < \sqrt{25}$

Fractions

Simplify as much as possible:

20) $\frac{9}{18}$ =

Fill in the missing number:

21) $\frac{2}{3} = \frac{\quad}{24}$

Change to a mixed number:

22) $\frac{17}{7} =$

Change to an improper fraction:

23) $3\frac{1}{2} =$

Simplify the following as much as possible:

24) $\frac{1}{2}(4 + 6) =$

25) $(\frac{1}{2} - \frac{1}{3}) + 4 =$

Compare the sizes of the following pairs. Which number is larger?

26) $\frac{5}{6}$ or $\frac{7}{8}$

27) $\frac{2}{3}$ or $\frac{4}{7}$

Perform the following operations: (reduce to lowest terms)

28) Add: $\frac{2}{3} + \frac{3}{4}$

29) Multiply: $\frac{4}{5} \times \frac{3}{4}$

30) Divide : $\frac{9}{16} \div \frac{1}{2}$

31) Subtract: $\frac{3}{4} - \frac{2}{3}$

32) Subtract: $9 - 2\frac{7}{10}$

33) Multiply: $2\frac{1}{2} \times 3\frac{1}{3}$

34) Add: $1\frac{1}{3} + 2\frac{3}{4}$

Arithmetic of Decimals

Perform the indicated operations without a calculator:

35) $.35 + .781$

36) $1.40 + .03$

37) $.15 \times .781$

38) $.006 \times .07$

Percentages

39) Change .04 to a percentage

40) Change 62.4% to a decimal

41) Change 5% to a decimal

42) Change .004 to a percentage

Simplifying Expressions

Simplify as much as possible. Do not solve

43) $5+(6-a)$

44) $7 - (2(-x+1))$

45) $\frac{7}{3}(4x)$

46) $-3(x-2)-(-x+3)$

Evaluating Expressions

Simplify as much as possible

47) $x^2 - \frac{1}{2}x + 3$ when x = 4

48) $3t^2$ when t = -4

Solving Linear Equations

Solve for the variable in each of the following. Simplify your answers.

49) $A - 5 = 13$

50) $C + 6 = -2$

51) $3(x + 2) = 4x + 9$

Working with Formulas

Substituting and solving

52)	$4 - A = B + x$	Solve for A if	B = 5,	x = 3
53)	$cd = a + 5$	Solve for d if	c = 7,	a = 9
54)	$ax - y = 9$	Solve for x if	a = 5,	y = 6

55. Find the following:

a. If $f(x) = x^3 + x^2 + 1$, find f(0)

b. If $h(x) = 2x^3 + x^2 - x$, find h(0)

56. Expand the following expressions and simplify the results.

a. $(x + 2)(x - 1)$

b. $(x + 4)(x - 4)$

57. Simplify the following. Your answers should contain no parentheses.

a. $(x - 2)^2 + x(x + 1)$

b. $x(x + 3) + (x + 2)^2$

58. Simplify the following:

a. $\frac{x^7}{x^3}$

b. $\frac{x^3}{x^7}$

59. Solve for x:

a. $x^2 = 100$

b. $2x^2 = 98$

c. $x^2 - 49 = 0$

d. $2x^2 + 6x + 4 = 0$

60. Find the equation of the straight line which passes through (-1, 4) and has slope of 4.

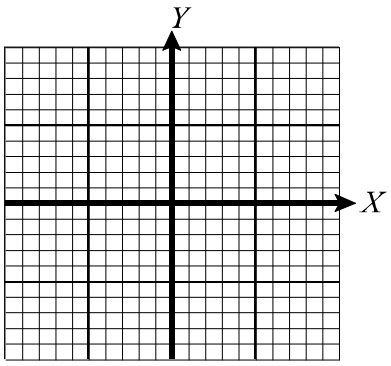
61. Find the slope of the line that has the equation.

a. $2x + 7y = 5$

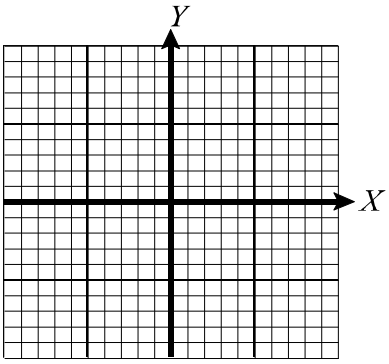
b. $-2x + 9y = 4$

62. Graph the equation.

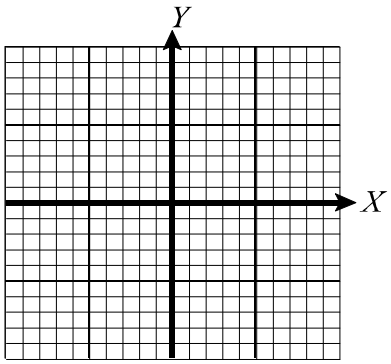
a. $y = -x + 1$



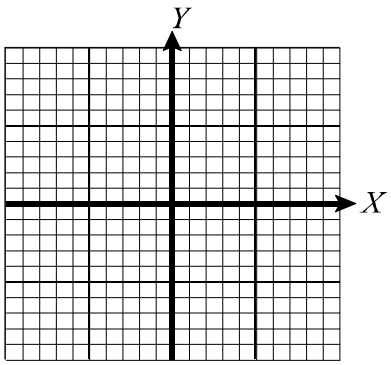
b. y = x^2



c. $y = -x^2$



d. $y = x^2 + 1$



63. Simplify the following.

a. $\sqrt{100}$

b. $\sqrt{x^9}$

c. $27^{-1/3}$

d. $2x^3 \cdot x^7$

e. $\dfrac{18x^2}{27x^{-1}}$

64. List the value(s) of x at which the functions is undefined.

a. $f(x) = \sqrt{x}$

b. g(x) = $\sqrt{x-3}$

c. h(x) = $\dfrac{3}{2x+4}$

65. Solve the inequalities for x that is, find all values of x for which this inequalities holds.

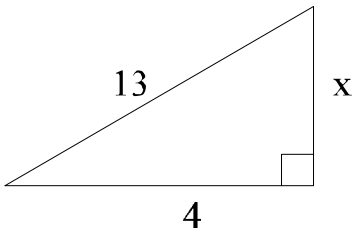
a. $x + 4 \leq 0$

b. $2x - 9 > 0$

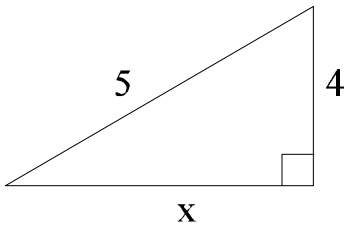
c. $x^2 - 4 > 0$

d. $3x + 4 > 4x - 9$

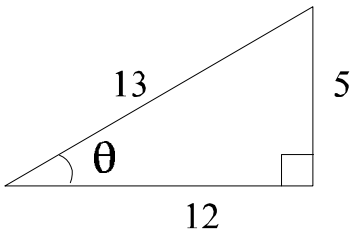
66. Find x:



67. Find x:



68. Find cos q :



69. Find x if sin x = $\frac{1}{2}$ and $0<x<\frac{p}{2}$

70. Express $120°$ in radians

71. Express $270°$ in radians

72. Simplify $\sqrt{1-\cos^2 y}$, $0 < y < \frac{p}{2}$

73. Let q be an acute angle of a right triangle and $\tan q = \frac{4}{3}$. Find $\sin q$.

74. Find the exact value of the expression $\sin 45^\circ + \cos 45^\circ$

75. Find $\tan^2\left(\frac{p}{4}\right) + \sin\left(\frac{p}{6}\right)$