

Math 0020 June 21, 2007 Test 1 KEY (rev. 6/21/2007)

Perform the operations, if possible, and simplify.

1) $(-5) + (-13) = \boxed{-18}$

2) $\frac{-12}{0} = \boxed{\text{undefined}}$

3) $-3^2 = \boxed{-9}$

4) $(-5)^2 = \boxed{25}$

5) $\frac{-18}{-3} = \boxed{6}$

6) $10 + 4(5 - 2) = \boxed{22}$

7) $2 - 3(15 - 13) - 4 \cdot 5 = \boxed{-24}$

8) $14 + 3 \cdot 6 \div 9 - 1 + 2 = \boxed{17}$

9) $9x + x - 4x = \boxed{6x}$

10) $(7a + 5b) - (2a - 3b) = \boxed{5a + 8b}$

11) $7a + 3a^2 - 4a - a^2 + 9 + 7a^3 - 6 = \boxed{7a^3 + 2a^2 + 3a + 3}$

Evaluate the following when $a = 6$, $b = -5$, and $c = 1$. 12) $a^2 + b^2 + c^2 = \boxed{62}$

Convert into an algebraic expression. 13) A number increased by ten.

$\boxed{x + 10}$

Find the solution set for the following.

14) $x + 4 = 20 \quad \boxed{16}$

15) $4x - 1 = 3x + 4 \quad \boxed{5}$

16) $10x - 8 = 3 - x \quad \boxed{1}$

17) $4x + 5 = 5 \quad \boxed{0}$

18) $\frac{1}{2}x + 4 = \frac{5}{4} \quad \boxed{\frac{-11}{2}}$

19) $3(2x + 1) + 2(x - 3) = 5 \quad \boxed{1}$

20) $3x + 1 < 10 \quad \boxed{x < 3}$

21) $3x + (x - 1) > 7 + 3x \quad \boxed{x > 8}$

22) $3 < 2x + 1 < 17 \quad \boxed{1 < x < 8}$

23) $15 \geq -3x \geq -9 \quad \boxed{-5 \leq x \leq 3}$

24) Solve for x : $y = 3x + z \quad \boxed{x = \frac{y-z}{3}}$

25) \$20,000 is invested in stocks and bonds. Stock earns 10%, and bonds earn 5%. If the total earnings were \$1650, how much was invested each in stock and bonds?

$.10x + .05(20000 - x) = 1650 \quad x = 13000$

 $\boxed{\$13,000 \text{ in stock and } \$7,000 \text{ in bonds were invested.}}$

26) Twice a number increased by three is at least thirteen.

a) Translate this sentence into an inequality using a variable for the unknown.

$\boxed{2x + 3 \geq 13}$

b) Find the solution using algebra. $\boxed{x \geq 5}$