Geometry   Summer Math Packet   Name:

Show all work or credit will not be awarded
No calculator, show all computation
Follow directions for word problems, by demonstrating the appropriate equations or now credit will be given

1) What property is demonstrated by $a+(b+c)=(a+b)+c$?

2) Evaluate: $g+\left(g^2-gh\right)-h$ if $g=-3, h=-6$

3) Simplify: $-6(-8v+7)+5(-7v+7)$

4) Simplify: $7x(-5x+1)+4(x+2)$

5) Solve for x: $2(3x-1)=4(2x+6)$

6) Evan found that if the product of 7 and a number is decreased by 47, the result is 110 less than the product of 4 and the number. What is the number?

7) Solve for y: $x-2y=3(3x+4)$

8) Find the slope between the following set of points. $(2,-8),(-7,-13)$

9) Identify the slope and y intercept for $y=\dfrac{2}{3}x-7$.

10) Graph $y=-\dfrac{1}{2}x+3$
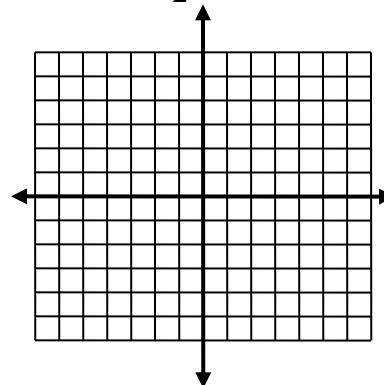
11) Find the slope of a line parallel to $y = \dfrac{4}{5}x - 8$.

12) Find the slope of a line perpendicular to $2x - 3y = -12$.

13) Find an equation of line, in slope-intercept form, that has a $m = 2$ and goes through $(-3, 5)$

14) Find an equation of line, in slope-intercept form, that goes through $(2, 4)$ and $(-4, 1)$.

15) Solve $5x + 3 < x - 9$

16) Solve $2x - 4(x - 3) \geq 10$

17) A 10 ft pole casts a 3 ft shadow at noon. How tall is a tree that casts a 26 ft shadow? Set up a proportion and solve.

18) Solve the following system by substitution
$$y = -3x + 5$$
$$3x - 2y = 35$$

19) Solve the following system by elimination
$$4x - y = 20$$
$$x + y = 0$$

20) Solve the following system
$$2x + 3y = -2$$
$$-8x + 8y = 8$$

21) Sue bought some saltwater fish for $1 each and some freshwater fish for $2 each for her two new aquariums. If she bought a total of 14 fish and spent a total of $23, how many of each fish did she purchase? Set up a system and solve

22) Multiply $(2x+1)(3x-4)$

23) Multiply $(4x-3)(4x+3)$

24) Multiply $(x^2 - 2x - 4)(3x-1)$

25) Factor $x^2 - 2x - 35$

26) Factor $3x^2 - 14x - 5$

27) Factor $36y^2 - 25$

28) Factor and solve $m^2 + 3m - 10 = 0$

29) Solve and check for extraneous solutions. $\sqrt{15 - 2x} = x$

30) Simplify $\sqrt{48}$

31) Simplify $\sqrt{32} + 4\sqrt{18} - 7\sqrt{2}$

32) Multiply $\left(2 + \sqrt{3}\right)\left(5 - \sqrt{3}\right)$

33) A right triangle has a leg of 5 in and hypotenuse of 10 in. Find the other leg.

34) A 20 ft ladder makes a $40°$ angle of elevation with a house. Use trigonometry to find out how far the ladder will actually reach.

35) Solve by completing the square.
$x^2 + 8x + 16 = 9$

36) Solve by using the quadratic formula $x^2 + x - 6$

37) Which trigonometric ratio is NOT TRUE?

A) $\sin\theta = \dfrac{opp}{hyp}$
B) $\tan\theta = \dfrac{adj}{opp}$
C) $\cos\theta = \dfrac{adj}{hyp}$
D) $\tan\theta = \dfrac{opp}{adj}$

38) Simplify: $\left(3x^2 - 2x\right) + \left(4x^3 + 6x\right) - \left(5x^2 + 8\right)$

39) Solve: $-15 \le -3x + 6 \le 6$

40) Find 30% of 20

41) Simplify $5x^3 + x - 1 - \left(x^2 + x + 3\right)$

42) Find the eighth term of the sequence $A(n) = \dfrac{1}{2}(-3)^{n-1}$

43) Are the following lines parallel, perpendicular, or neither? $4x = 3y + 23$ and $4y + 3x = -19$

44) Find the 100th term of the sequence $A(n) = -5 + (n-1)3$