Geometry 22 Summer Work Packet

Covering Prerequisite Concepts for Incoming Geometry 22 Students

This workbook contains problems designed to ensure the student's readiness for Geometry. The topics covered in this packet are concepts that should have been mastered in courses **before** entering Geometry 22 and should still be retained. The accompanying Review and Study Guide provides explanations, examples and extra problems and can be viewed or printed to help you complete your summer packet. A prepared student should be able to complete this work WITHOUT A CALCULATOR and it is strongly recommended that calculators NOT be used to complete the problems.

Topics Covered in this Packet:

A. Order of Operations
B. Fractions, Decimals, and Percents
C. Simplifying Expressions
D. Solving Equations
E. Linear Graphs
F. Polynomial Expressions and Equations
G. Solving Systems of Equations
H. Geometry Vocabulary

Name: _____

Please place all answers on the answer sheet. Please do not use a calculator to complete this packet.

A. Order of Operations

Evaluate each expression. Write your answer in simplest form.

1. $10 - 8 \div 2$
2. $\left[15(10) - 8(10)\right] \div 10$
3. $(4^2 - 7) + (9 - 3)^2$
4. $-4\left[(3 + 2 \times 3) - 5\right] + 10$
5. $80 \div 4 \times 3 - 2 \times 8$
6. $3^2 + 7 \times 2 - 8 \times 2$

B. Fractions, Decimals, and Percents

Evaluate each expression. Write your answer in simplest form. Where applicable, leave answers as improper fractions. (Reduce, reduce, and reduce!)

1. $\frac{5}{6} - \frac{3}{4}$
2. $\frac{2}{3} + \frac{5}{8} - \frac{3}{4}$
3. $3\frac{1}{2} - 4\frac{5}{6}$
4. $24 \times \frac{7}{16}$
5. $6\left(\frac{4}{7} + \frac{1}{2}\right)$
6. $\frac{12}{54} \div \frac{4}{9}$
7. $\left(\frac{3}{4} + \frac{5}{6}\right) \div \frac{5}{12}$
8. What is 30% of 18?
9. What is $\frac{3}{7}$ as a percent?
10. What is .345 as a percent?
11. What is 14.6% as a decimal?
12. 12 is 15% of what number?

C. Simplifying Expressions

Simplify each expression. Write your answer in simplest form.

1. $4y + 3x - 2y = 10x^2 - 8x + 6x^2$
2. $8 + 2x - x^2 + 3x^2 = 10 - 4x + 6$
3. $5(4x - 2) - 20x + 8 = x(3 - x) + 2x^2 - x$
4. $10 - (2x - 4) + y = 20 - (2 - x) + 6(x^2 - x)$
5. $\frac{8x^2 - x(x-2)}{2(3-x)} = \frac{4-2x}{2}$

D. Solving Equations

Solve each of the following equations for *x*.

1. $2 + 5x = 57$
2. $3x - 5 = 4x - 2(4 - x)$
3. $3 - 2(x - 1) = 2 + 4x$
4. $\frac{10}{x} = \frac{16}{96}$
5. $\frac{12 - 2x}{48} = \frac{3x - 6}{72}$
6. $200 = \frac{3(500 + 100x)}{2x}$

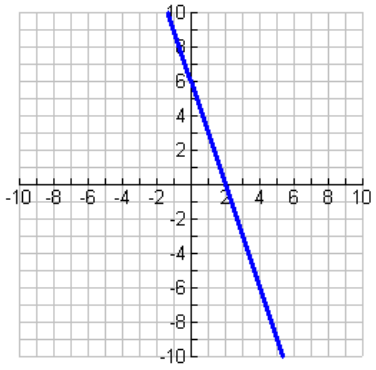
E. Linear Graphs

Find the slope of the line containing the two given points.

1. (-3, 4) and (5, 6) 2. (12, -8) and (-4, 0) 3. (-1, -4) and (1, -8)

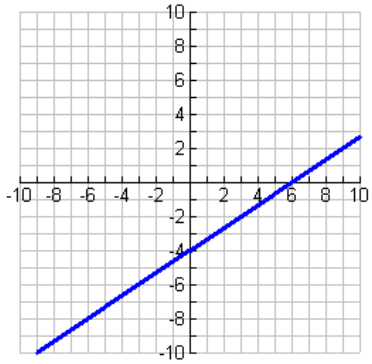
Find the slope and the intercepts of the lines. Write the equation of the line in slope-intercept form.

4.



Slope = _____
y-intercept = ____ x–intercept = ____
Equation _____

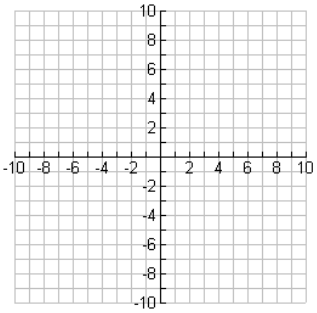
5.



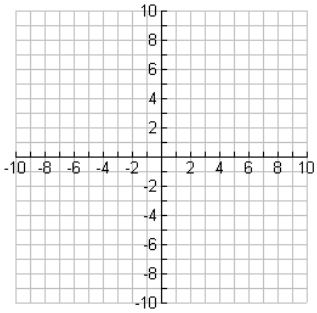
Slope = _____
y-intercept = ____ x–intercept = ____
Equation _____

Write the equation in slope intercept form, then graph the line. (y = mx + b)

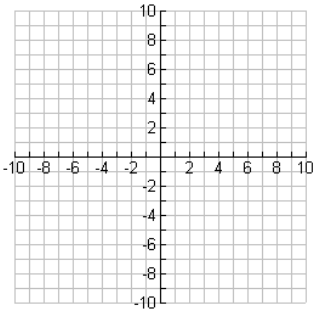
6. y = 4x – 1



7. 2y = -6x + 8



8. 3x – y = 7



F. Polynomial Expressions & Equations

Simplify each expression.

1. x · x = 2. $(x^3)(4x)$ = 3. $\frac{18x^4}{3x^3}$ = 4. (-12x)(5x) =

Distribute and simplify.

5. 5x(2x – 8) = 6. 2x – 3(x + 4) = 7. $-9(x^3 - 4x + 7)$ =

Multiply and simplify.

8. (x – 8)(x + 4) = 9. (3x – 4)(5x + 4) = 10. $(x + 7)^2$ =

Factor each expression.

11. $x^2 + 6x - 16$ 12. $x^2 - 7x + 12$ 13. $x^2 - 8x - 9$

Solve each quadratic by factoring.

14. $x^2 - 3x - 40 = 0$ 15. $x^2 - 19x + 90 = 0$

Solve using the quadratic formula:

16. $-2x^2 - 2x + 24 = 0$ 17. $2x^2 + 3x - 4 = 0$

Simplify:

19. $(-4x)^2$ 19. $-(4x^2)$ 20. $-(4x)^2$

21. $\sqrt{49}$ 22. $x = \sqrt{100}$ 23. $x = \sqrt{-36}$

G. Solving Systems of Equations

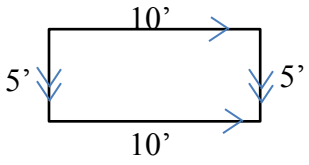
Solve each of the following systems using substitution.

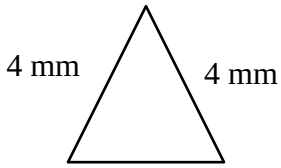
1. $x + y = 3$
   $y = 2x - 6$

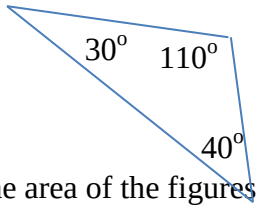
2. $-x + 2y = 6$
   $4y + x = 24$

H. Geometry Vocabulary

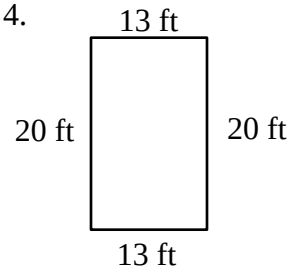
Identify the figures shown.

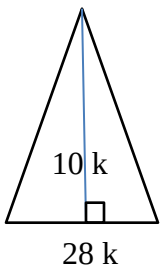
1. 

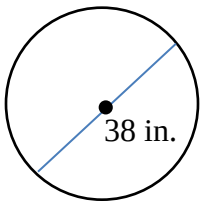
2. 

3. 

Find the area of the figures below:

4. 

5. 

6. 

Geometry 22 Summer Math Packet
Answer Sheet

Please place all answers on this answer sheet. Problems that require graphs should be done on the included grids on the next pages.

Name: _____

A. Order of Operations

1. _____ 2. _____ 3. _____

4. _____ 5. _____ 6. _____

B. Fractions, Decimals, and Percents

1. _____ 2. _____ 3. _____ 4. _____

5. _____ 6. _____ 7. _____ 8. _____

9. _____ 10. _____ 11. _____ 12. _____

C. Simplifying Expressions

Simplify each expression. Write your answer in simplest form.

1. _____ 2. _____

3. _____ 4. _____

5. _____

D. Solving Equations

1. _____ 2. _____ 3. _____

4. _____ 5. _____ 6. _____

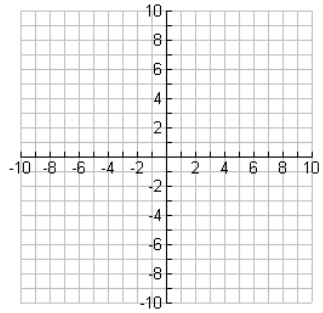
E. Linear Graphs

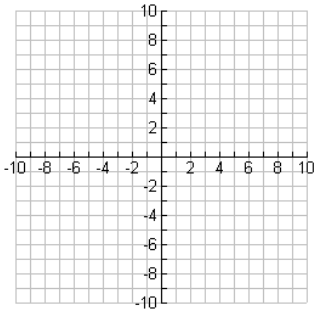
1. _____ 2. _____ 3. _____

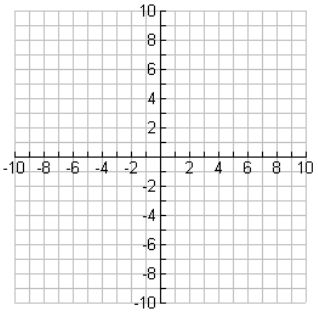
4.
Slope = _____
y-intercept = ____ x–intercept = ____
Equation _____

5.
Slope = _____
y-intercept = ____ x–intercept = ____
Equation _____

6. 7. 8.







F. Polynomial Expressions & Equations

1. _____ 2. _____ 3. _____ 4. _____

5. _____ 6. _____ 7. _____

8. _____ 9. _____ 10. _____

11. _____ 12. _____ 13. _____

14. _____ 15. _____ 16. _____

16. _____ 17. _____ 18. _____

19. _____ 20. _____ 21. _____

22. _____

G. Solving Systems of Equations

1. _____ 2. _____

H. Geometry Vocabulary

1. _____ 2. _____ 3. _____

4. _____ 5. _____ 6. _____