

BE SURE TO KNOW THIS INFORMATION FOR YOUR FINAL EXAM.

Give the definition for each transformation. KNOW THE PROPERTIES OF EACH!

1) translation - A <u>slide</u> that preserves size and shape $T_{a,b} : (x,y) \rightarrow (x+a, y+b)$	2) reflection - A <u>flip</u> that produces a mirror image. Size and shape are preserved. $r_x (x,y) \rightarrow (x,-y)$ $r_y (x,y) \rightarrow (-x,y)$
3) dilation - A <u>change in size</u> but not shape from multiplying $D_k : (x,y) \rightarrow (k \cdot x, k \cdot y)$	4) rotation - A <u>turn</u> about a point, size and shape are maintained

Enlarge $D_2, D_{1.2}$
Reduce $D_{\frac{1}{2}}, D_{\frac{1}{3}}$

5) Give the rules for each type of rotation.

a) 90° clockwise R_{90} $(x,y) \rightarrow (y,-x)$	b) 90° counter clockwise R_{+90} $(x,y) \rightarrow (-y,x)$	c) 180° Either direction $(x,y) \rightarrow (-x,-y)$
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6) Laws of exponents: GIVE AN EXAMPLE OF EACH.

a) multiplication - • mult. coeffs • KEEP BASE • Add powers ex. $(3x^2)(5x^5) = 15x^7$	b) division - • ÷ coefficients • Keep base • Subtract exponents ex. $18x^{10} \div 6x^2 = 3x^8$	c) negative - produces $\frac{1}{\text{rest of problem}}$ ex. $5^{-2} = \frac{1}{5^2} = \frac{1}{25}$
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$(5^3)(5^{10}) = 5^{13}$

$\frac{4^{12}}{4^3} = 4^9$

7) Types of angles: Draw a diagram for each.

a) supplementary - Angles that <u>add to 180°</u> 	b) complementary - Angles that <u>add to 90°</u>
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8) Angles in parallel lines:

Give two pairs of angles for each.

Vertical - 1,4 5,8
 2,3 7,6

Supplementary - 1,2 3,4 3,5 5,6 8,1
 2,4 3,1 4,6 6,8 5,7

Corresponding - 1,5 3,7
 2,6 4,8

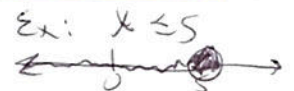
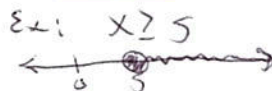
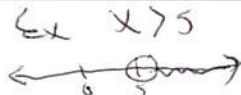
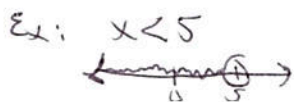
Alternate interior - 3,6 4,5

Alternate exterior - 1,8 2,7

over

9) Inequality symbols - tell what each symbol represents in words.

a) < <u>less than</u>	b) > <u>greater than</u>	c) ≥ <u>greater than or =</u>	d) ≤ <u>less than or =</u>
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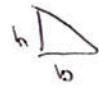
10) $y = mx + b$ Tell what the variables represent and give a definition for each.

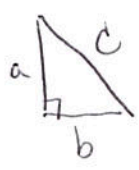
a) m - the <u>slope</u> or rate of change ... $\frac{\Delta y}{\Delta x} = \frac{\text{rise}}{\text{run}}$	b) b - <u>y-intercept</u> is the point where a "line" crosses the y-axis ... $(0, b)$
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11) Name the three ways to factor an expression.

a) <u>G.C.F</u>	b) <u>DOTS</u>	c) <u>trinomial</u>
d) Factor: $x^2 + 8x + 15$ <u>$(x+5)(x+3)$</u>	e) Factor: $3x^3 + 30x + 18$ gcf <u>$3(x^3 + 10x + 6)$</u>	f) Factor: $x^2 - 16$ DOTS <u>$(x+4)(x-4)$</u>

12) Right triangles:

a) Pythagorean theorem <u>$(a)^2 + (b)^2 = (c)^2$</u>	b) Area formula <u>$A = \frac{b \cdot h}{2}$</u> 	c) Perimeter formula <u>$P = s + s + s$</u> (sum of all sides)
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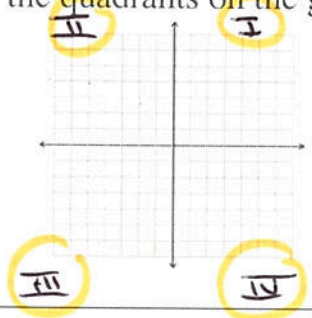


Give the definition for each word.

13) parabola - a " <u>U</u> " ... a bent <u>line</u> <u>$y = ax^2 + bx + c$</u>	14) monomial - <u>single term</u> (no addn. or subtraction) Ex: $5x^3y^2z$
15) binomial - <u>2 terms</u> separated by $+$ or $-$ Ex: $x+4$ or $2x-3$	16) polynomial - <u>2 or more terms</u> Ex: $x+4$ Ex: x^2+x-6 <u>Connected w/ addition</u> Ex: $5x^3+2x^2+x-1$ <u>or subtraction</u>
17) operations with #s in scientific notation To add or subtract: - Get = <u>powers</u> } \uparrow power, move decimal to left - $+$ or $-$ coefficients - Keep base & power To multiply or divide: - \times or \div coeffs. - Keep base - $+$ powers if \times ... - powers if dividing To convert to- Make decimal between 1 and 10 [Dec. left ... power \uparrow Dec. right ... power \downarrow	18) Give the <u>scientific notation</u> of: a) 32,000 <u>3.2×10^4</u> b) 0.000032 <u>3.2×10^{-5}</u> c) $(2.4 \times 10^5) + (340 \times 10^4)$ <u>36.4×10^5</u> \leftarrow $2.4 \times 10^5 + 34.0 \times 10^5$ d) $(2.4 \times 10^5)(340 \times 10^4)$ _____ <u>816.0×10^9</u> <u>8.16×10^{11}</u>

19) Define and give an example of the Distributive property.

20) Label the quadrants on the graph below.



21) Rate of change-

Slope- $\frac{\Delta y}{\Delta x} = \frac{\text{rise}}{\text{run}}$

Writing the function rule for a linear set of data-

$y = mx + b$

Equation