

Study Guide Math II

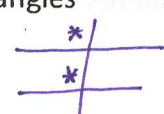

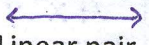





<p>Exponential Growth and Interest</p> $Y = a(1+r)^t$ <p>Exponential Decay</p> $Y = a(1-r)^t$ <p>A = initial or start value R = % rate (in decimal form) T = time (number of times/years)</p>	<p>Exponents:</p> <p>Multiplying: Add the exponents of same bases</p> $(2x^4y^2)(3x^3y^5) = 6x^7y^7$ <p>Dividing: Subtract the exponents of same bases</p> $\frac{8x^3y^4}{4x^5y} = \frac{2y^3}{x^2}$ <p>Power to a power: Multiply the exponents</p> $(4x^3y^6)^4 = 256x^{12}y^{24}$
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<p>Translations:</p> <p>Right: Add to X coordinate</p> <p>Left: Subtract from X coordinate</p> <p>Up: Add to Y coordinate</p> <p>Down: Subtract from Y coordinate</p> $-(x+h)^2 + k$ <p>neg in front: reflect over x-axis</p>	<p>Reflections:</p> <p>X-axis: $(x, y) \rightarrow (x, -y)$ change y</p> <p>Y-axis: $(x, y) \rightarrow (-x, y)$ change x</p> <p>Y=x Line $(x, y) \rightarrow (y, x)$ swap</p>	<p>Rotations:</p> <p>0 degrees/ original: (x, y)</p> <p>90 degrees: $(-y, x)$</p> <p>180 degrees: $(-x, -y)$</p> <p>270 degrees: $(y, -x)$</p>
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<p>Polynomials:</p> <p>Add like terms only</p> <p>Subtract change all signs on 2nd () then combine only like terms</p> <p>Multiply: Box Method FOIL (first, outside, inside, last)</p>	<p>Quadratics:</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>2 x intercepts</p> </div> <div style="text-align: center;"> <p>1 x intercepts</p> </div> <div style="text-align: center;"> <p>0 intercepts</p> </div> </div>
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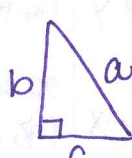
$$(2x^2+3) - (-5x^2-7)$$

$$2x^2+3+5x^2+7$$

<p>Congruent</p> <p>Vertical angles</p> <p>Shared lines <i>reflexive prop</i></p> <p>Shared angles</p> <p>Corresponding angles</p>  <p><i>alt int/ext</i></p>	<p>90 degrees</p> <p>Complementary Angles</p> <p>Right Angles</p> 	<p>180 degrees</p> <p>Triangles</p> <p>Supplementary angles</p> <p>Straight line</p>  <p>Linear pair</p>  <p><i>same side int</i></p>	<p>Classify Triangles</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>These are different kinds of triangles.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Equilateral Triangle All of the sides have equal lengths.</p> </div> <div style="text-align: center;">  <p>Isosceles Triangle Two of the sides have equal lengths.</p> </div> <div style="text-align: center;">  <p>Right Triangle One angle is a right angle.</p> </div> <div style="text-align: center;">  <p>Scalene Triangle Each side is a different length.</p> </div> </div> </div> <p>Congruency: <i>not</i> \cong</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;"> <p>ASS AAA</p> </div> <p>SSS SAS ASA AAS</p> <p><i>sides: equilateral, scalene, isosceles</i></p> <p><i>angles: acute, obtuse, right, equiangular</i></p>
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Right triangles:

Pythagorean Theorem

$$a^2 = b^2 + c^2$$


hyp is always by itself on =

Inverse (looking for angle degree)
angle INside INverse

SOHCAH TOA (degree mode)

Non-Right Triangles

Law of Sine

2 sides
2 \angle s

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

Law of Cosine

3 sides
1 angle

$$a^2 = b^2 + c^2 - 2bc \cos A$$

Probability

$$P(A) = \frac{A}{\text{Total}}$$

and

$$P(A \cap B) = \frac{A \cap B}{\text{Total}}$$

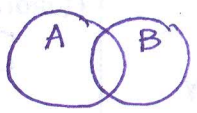
Addition Rule

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

or

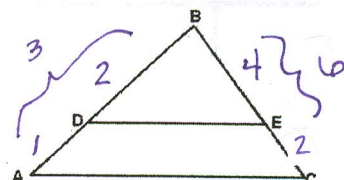
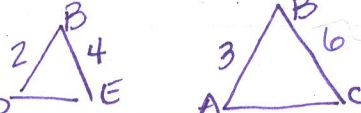
$$P(A|B) = \frac{A \cap B}{B}$$

Independent Events

$$P(A) \cdot P(B) = P(A \cap B)$$


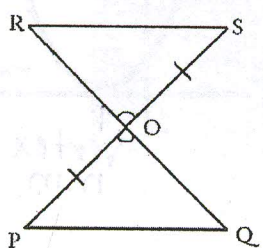
Similarity (\sim)

Alike but not equal to

Congruent (\cong)

Exactly Equal

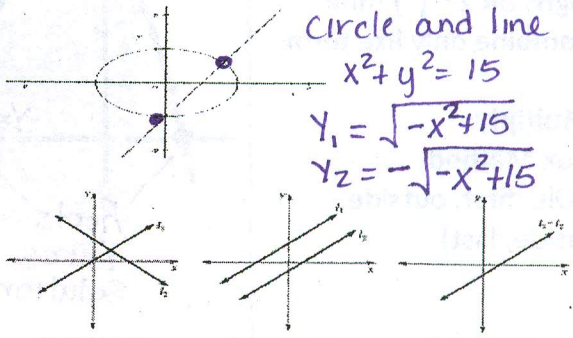


Systems:

Circle and line

$$x^2 + y^2 = 15$$

$$y_1 = \sqrt{-x^2 + 15}$$

$$y_2 = -\sqrt{-x^2 + 15}$$


System is independent and consistent: *one solution (x,y)*

System is inconsistent: *parallel no solution*

System is dependent: *same line Ims all Reals*

$$\frac{2}{3} = \frac{4}{6}$$

midsegment

