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| ***Day*** | ***Date*** | Focus Question | Common Core Standard(s) | ***Additional Details***  ***Text McDougal Littell*** |
| T | 01/31/12 | Review key concepts |  |  |
| W | 02/01/12 | What are the basic three trigonometric functions of an angle?  Students will be able to  1. define sine, cosine and tangent of an acute angle in a right triangle  2. express the value of the three trigonometric functions of an angle as ratios of the sides of a right triangle  3. determine the value of a trig function using technology  Writing Exercise: The word “trigonometry” has Greek roots. Look up these roots and compare the roots to the mathematical definition of  trigonometry. | A2.A55 |  |
| Th | 02/02/12 | What are the six trigonometric functions of an angle?  1. define secant, cosecant, and cotangent as the reciprocal functions of cosine, sine, and tangent respectively  2. express the value of the six trigonometric functions of an angle as ratios of the sides of a right triangle  3. use the appropriate calculator key strokes to find the values of reciprocal functions  4. explain that the product of a function and its reciprocal is one  5. express values of other trigonometric functions when given the value of one of the trigonometric function values  6. determine the value of a trig function using technology | A2.A55 |  |
| F | 02/03/12 | What are the properties of the isosceles right triangle?  Students will be able to  1. investigate the relationships between the sides of a 450-450-900 triangle  2. given the length of any side of a 450-450-900 triangle, express the exact and approximate lengths of the other two  sides  3. find the trigonometric function values using a 45-45-90 triangle  4. apply these special right triangle relationships to evaluate numeric and algebraic expressions involving functions of angles measuring 45 degrees. | A2.A56 |  |
| M | 02/06/12 | What are the properties of the special right triangles?  Students will be able to  1. investigate the relationships between the sides of a 300-600-900 triangle  2. given the length of any side of a 30-60-90 triangle, express the exact and approximate lengths of the other two  sides  3. find the trigonometric function values using a 30-60-90 triangle  4. apply these special right triangle relationships to evaluate numeric and algebraic expressions involving functions of angles measuring 300, 450, and 600  Writing Exercise: Speculate as to why the special right triangles discussed in today’s lesson are so important in the real world. | A2.A56 |  |
| T | 02/07/12 | How do we use radians to measure angles?  Students will be able to  1. define a radian  2. discover and conjecture the relationship between degree measure and radian measure  3. convert radian measure into degree measure and vice versa  4. evaluate expressions involving trig functions whose angles are given in radians | A2.A61  A2.M1  A2.M2 |  |
| W | 02/08/12 | How can degrees be converted to radians and radians to degrees?  Students will be able to  1. define a radian  2. discover and conjecture the relationship between degree measure and radian measure  3. convert radian measure into degree measure and vice versa  4. evaluate expressions involving trig functions whose angles are given in radians | A2.A61  A2.M1  A2.M2 |  |
| Th | 02/09/12 | How do we find the length of an arc and area of a sector?  Students will be able to  1. investigate and discover the relationship between the radian measure of an angle and the length of its intercepted arc  2. conjecture and apply the formula S=θ r  3. Students will be able to find the area of a sector of a circle using A=pi x r-squared x theta  Writing Exercise: How do degree measure and arc length differ? | A2.A61 |  |
| F | 02/10/12 | What are co-functions and quotient identities?  Students will be able to  1. state that sine and cosine, tangent and cotangent, secant and cosecant are co-functions  2. solve trigonometric equations using the principle "If the co-functions of two acute angles are equal, then the angles are complementary”  3. compare co-function and reciprocal relations  4. discover and apply quotient identities  5. express quotients of trigonometric functions in terms of sine and cosine. | A2.A55  A2.A58  A2.A59 |  |
| M | 02/13/12 | How do we define the trigonometric ratios for angles of any size?  Students will be able to  1. explain what is meant by an angle drawn in standard position and by a reference angle  2. identify the quadrant in which an angle terminates  3. express sine, cosine, tangent, cotangent, cosecant, secant functions in terms of rectangular coordinates  4. conjecture and justify which functions are positive in each quadrant | A2.A57  A2.A60  A2.A66 |  |
| T | 02/14/12 | How do we define the trigonometric ratios for angles of any size?  Students will be able to  5. determine the quadrant of an angle when given a point on the terminal side of the angle  6. find the number of degrees in an angle when given the coordinates of a point on the terminal side using reference angles of 30 ° , 45 ° or 60 °  7. sketch and label the unit circle and represent angles in standard position  8. identify the line segment of a unit circle that represents each of the six trig functions of an angle  9. use the concept of the unit circle to solve real-world problems involving trigonometric functions  10. determine the value of a trig function using technology. | A2.A57  A2.A60  A2.A66 |  |
| W | 02/15/12 | How do we find functions of angles greater than 90 degrees?  Students will be able to  1. explain what is meant by a reference angle  2. use a diagram to determine the sign of the required function in any quadrant  3. relate functions of angles greater than 90 ° to the same function of an acute angle in quadrant I  4. state the definition of co-terminal angles  5. explain how to find the reference angle for an angle in any quadrant  6. state and apply the procedure used for finding trigonometric functions of any angle expressed in degree or radian measure  7. explain how to determine the appropriate sign when you express the function of an angle in terms of a function of its reference angle  8. find the value of the six trig functions given the coordinates of a point on the terminal side of the angle in standard position  Writing Exercise: How do the definitions of the trigonometric ratios in terms of rectangular coordinates extend the meaning of the  trigonometric functions beyond the limits of the right triangle? | A2.A57  A2.A59  A2.A60  A2.A62 |  |
| Th | 02/16/12 | How do we find functions of negative angles and quadrantal angles?  Students will be able to  1. explain what is meant by a negative angle  2. relate a negative angle expressed in degree or radian measure to its positive co-terminal angle  3. state what is meant by a quadrantal angle  4. find functions of quadrantal angles using the unit circle  5. verify the values of functions of quadrantal angles using a calculator  6. express functions of negative angles as functions of positive angles  7. use a calculator to check values of trigonometric functions  8. evaluate trigonometric expressions containing quadrantal and negative values  9. find the exact value of functions of quadrantal angles, when the angles are expressed in radians or degrees  Writing Exercise:  1. How can an angle be negative?  2. How are quadrantal angles different from all the other angles? | A2.A59  A2.A62 |  |
| F | 02/17/12 |  |  |  |
| M | 02/27/12 | How do we evaluate inverse trigonometric relations and functions?  Students will be able to  1. form the inverse of a given trigonometric function  2. transform between direct trigonometric notation and inverse trigonometric notation  3. evaluate expressions involving inverse trigonometric notation  4. state the principal range of the inverse trigonometric functions  5. use the calculator to evaluate expressions using principal value notation  Writing Exercise: Explain why the inverse of the sine function is only a function in a restricted domain. | A2.A63  A2.A64  A2.A65 |  |
| T | 02/28/12 | What is the Law of Sines?  Students will be able to  1. investigate and discover the Law of Sines from the formula A =  1 sin .  2  *ab C*  2. express the Law of Sines in different forms  3. explain the conditions necessary to apply the Law of Sines  4. apply the Law of Sines to find the length of a side of a triangle, if measures are given for two angles and a side (in short numerical  problems only)  5. justify whether or not a triangle is acute, obtuse, or right | A2.A73 |  |
| W | 02/29/12 | How do we find the area of a triangle given the lengths of two adjacent sides and the included angle?  Student will be able to  1. investigate and discover the formula for the area of a triangle in terms of two sides and the sine of the included angle.  2. conjecture and apply the formula A =  1 sin .  2  *ab C* to write a formula for the area of a parallelogram in terms of two sides and the sine of  the included angle  3. apply either area formula to solve problems, including real-world applications involving triangles and parallelograms  Writing Exercise: The area of a triangle can be determined using either of the following formulas: *A* =  1  2  *bh* or *A* =  1 sin .  2  *ab C* Explain  how these two formulas are related. | A2.A74 |  |
| Th | 03/01/12 | How do we apply the Law of Sines?  Students will be able to  1. apply the Law of Sines to find the measure of a side or angle of a triangle  2. solve long problems involving the use of the Law of Sines  3. explain the conditions necessary to apply the Law of Sines  4. use the calculator to find the sine of an angle expressed in degrees with minutes or decimal  How can the Law of Sines be used in problems involving the “ambiguous case?”  Students will be able to  1. apply the Law of Sines to discover all possible values of an unknown angle  2. conjecture and justify the number of possible triangles  3. explain the nature of all possible triangles | A2.A73  A2.A75 |  |
| F | 03/02/12 | What is the Law of Cosines?  Students will be able to  1. explore and discover the Law of Cosines  2. express the Law of Cosines in various ways  3. solve short problems using the Law of Cosines  4. compare and contrast the conditions necessary to use the Law of Cosines as opposed to the Law of Sines | A2.A73 |  |
| M | 03/05/12 | How do we apply the Law of Cosines?  Students will be able to  1. explain the circumstances necessary to apply the Law of Cosines  2. apply the Law of Cosines to solve triangle problems  3. solve problems involving angle measurement of a circle and the Law of Cosines  4. apply the Law of Cosines, given the lengths of the three sides of a triangle  5. justify whether or not a triangle is acute, obtuse, or right  6. (Honors Topic) apply the Law of Cosines to real-world problem involving the parallelogram of forces | A2.A73 |  |
| T | 03/06/12 | How do we determine the appropriate formulas to use in solving triangle problems?  Students will be able to  1. explain when trigonometry of the right triangle is used to find lengths of sides or measures of angles  2. explain when the Law of Sines is used to find lengths of sides or measures of angles  3. explain when the Law of Cosines is used to find lengths of sides or measures of angles  4. solve problems involving any combination of the Law of Sines, Law of Cosines and trigonometry of the right triangle  5. solve numerical examples involving trigonometric ratios, including angle of elevation  Writing Exercise: Often it is not possible to make measurements directly, as in the case of determining the elevation of a mountain peak.  Describe how the Law of Sines and/or the Law of Cosines can help with such measurements. | A2.A73 |  |
| W | 03/07/12 | Concept Review |  |  |
| Th | 03/08/12 | Concept Review |  |  |
| F | 03/09/12 | Summative Exam |  | End Marking Period 1 |
| M | 03/12/12 | How do we draw the graphs of *y* = sin *x* and *y* = cos *x* ?  Students will be able to  1. generate and use tables to graph *y* = sin *x* and *y* = cos *x*  2. use the graphing calculator to verify the graphs of *y* = sin *x* and *y* = cos *x*  3. analyze the graphs to find the sine and cosine values of quadrantal angles  4. investigate and explain how both graphs vary in the four quadrants  5. analyze the graphs to conjecture the coordinates of maximum and minimum points  6. conjecture and explain the domain and range of each function  7. investigate the interval for which each function repeats itself  *8.* define *amplitude* and *period*  9. compare and contrast the sine and cosine graphs for period, amplitude, coordinates of maximum and minimum points | A2.A69 |  |
| T | 03/13/12 | How do we sketch the graphs of *y* = *a* sin *bx* and *y* = *a* cos *bx* ?  Students will be able to  1. define *amplitude*, *period* and *frequency*  2. state the amplitude, frequency, period, domain and range of *y* = *a* sin *bx* and *y* = *a* cos *bx*  3. sketch *y* = *a* sin *bx* and *y* = *a* cos *bx* using the five critical points  4. use the graphing calculator to graph *y* = *a* sin *bx* and *y* = *a* cos *bx*  5. explore and conjecture the effects on the graph as "a" changes and as “b” changes  6. determine the amplitude, frequency, period, domain, and range from the equation  7. write the trigonometric function that is represented by a given periodic graph  Writing Exercise: What do you think is the advantage of expressing angle measures in terms of radians? | A2.A69  A2.A70  A2.A72 |  |
| W | 03/14/12 | How do we sketch the graphs of *y* = *a*sin(*bx* + *d*) + *c* and *y* = *a* cos(*bx* + *d*) + *c* ?  Students will be able to  1. find the amplitude, frequency, period, domain and range of *y* = *a*sin(*bx* + *d*) + *c* and *y* = *a* cos(*bx* + *d*) + *c*  2. investigate and conjecture the effects on the graph as b, d, and c change  3. sketch *y* = *a*sin(*bx* + *d*) + *c* and *y* = *a* cos(*bx* + *d*) + *c* using the five critical points  4. use the graphing calculator to graph *y* = *a*sin(*bx* + *d*) + *c* and *y* = *a* cos(*bx* + *d*) + *c*  5. write the equation of a sine or cosine function whose graph has a specified period and amplitude  6. determine phase shift given the graph or equation of a periodic function  7. write the trig function that is represented by a given periodic graph | A2.A69  A2.A72 |  |
| Th | 03/15/12 | How do we sketch the graph of *y* = tan *x* ?  Students will be able to  1. sketch the graph of *y* = tan *x*  2. use a graphing calculator to graph *y* = tan *x*  3. determine the period, domain and range of *y* = tan *x*  4. explain why *y* = tan *x* does not have an amplitude  5. explain how the tangent graph differs from the sine graph and the cosine graph  6. define *asymptote* and sketch the asymptotes of the graph of *y* = tan *x*  7. explain how the graph of *y* = tan *x* varies in each quadrant  8. compare the graph of y=tan x to the graphs of y = sin x and y = cos x  Writing Exercise: The graph of *y* = tan *x* is a non-continuous periodic function. Explain the characteristic(s) of the tangent function that  causes these discontinuities.. | A2.A71 |  |
| F | 03/16/12 | How do we sketch the graphs of y = csc x, y = sec x, and y = cot x?  Students will be able to:  1. sketch y = csc x, y = sec x, and y = cot x  2. use the graphing calculator to graph y = csc x, y = sec x, and y = cot x  3. compare and contrast the properties of the graphs of the 6 trig functions  4. write the equation of a trig function that is represented by a given periodic graph  Writing Exercise: Ramon claims that even though y=csc x and y=sin x are reciprocal functions, the graph of y=csc x has more in common  with the graph of y=tan x than it does with y=sin x. Evaluate his statements and give evidence to support your judgment. | A2.A71 |  |
| M | 03/19/12 | Concept Review |  |  |
| T | 03/20/12 | Graphing quiz |  |  |
| W | 03/21/12 | What are the Pythagorean Identities?  Students will be able to  1. investigate, discover, and conjecture the Pythagorean Identities  2. justify the validity of the Pythagorean Identities using special angles  3. simplify trigonometric expressions by substituting previous learned identities  4. explain which identities express relationships between the same angle and which identities express relationships between different angles  (i.e., between angles that are complementary)  Writing Exercise: Explain why the name Pythagorean Identity is appropriate. | A2.A67 |  |
| Th | 03/22/12 | How do we solve linear trigonometric equations? Aim  Students will be able to  1. solve a linear trigonometric equation for the trigonometric function  2. find the reference angle based upon the value of the function  3. find all the solutions to a linear trigonometric equation given a specific domain  Writing Exercise: How is the solution set of a linear equation different from the solution set of a linear trigonometric equation? | A2.A68 |  |
| F | 03/23/12 | How do we solve quadratic trigonometric equations?  Students will be able to  1. solve quadratic trigonometric equations either by factoring or by using the quadratic formula  2. solve quadratic trigonometric equations for all values of the angles whose measures lie between 0 ° and 360 °  Writing Exercise: How would the solution set of sin2θ =1 for 0≤θ < 2π differ from the solution set for sin2θ =1 for an unrestricted  domain? | A2.A68 |  |
| M | 03/26/12 | How do we solve trigonometric equations that contain more than one function?  Students will be able to  1. apply previously learned identities to express an equation in terms of one trigonometric function  2. solve the resulting equation for all values of the angle in the interval 00 < θ < 3600  Writing Exercise: A trigonometric equation that contains more that one function is like an equation with two variables. Compare and  contrast the techniques that are used to solve equations with two variables with trigonometric equations that contain more  than one function | A2.A68 |  |
| T | 03/27/12 | How do we find the cosine of the difference of two angles and the cosine of the sum of two angles?  Students will be able to  1. verify the validity of the formula for the cosine of the difference of two angles  2. verify the validity of the formula for the cosine of the sum of two angles  3. apply the formulas for cos(*A*− *B*) and cos(*A*+ *B*) to find the exact value of expressions involving angles measured in radians and in  degrees  4. state the sum and difference formulas in words | A2.A76 |  |
| W | 03/28/12 | How do we find the sine of the difference of two angles and the sine of the sum of two angles?  Students will be able to  1. apply the formulas for cos(A+B) and cos(A-B) to discover the formulas for sin(*A*− *B*) and sin(*A*+ *B*)  2. verify the validity of the formula for the sine of the difference of two angles  3. verify the validity of the formula for the sine of the sum of two angles  4. apply the formulas for sin(*A*− *B*) and sin(*A*+ *B*) to find the exact value of expressions involving angles measured in radians and in  degrees  5. state the sum and difference formulas in words | A2.A76 |  |
| Th | 03/29/12 | How do we find the tangent of the sum of two angles and the tangent of the difference of two angles?  Students will be able to  1. apply the sum and difference formulas for sine and cosine to discover formulas for the tangent of the sum of two angles and the tangent  of the difference of two angles | A2.A76 | Parent Teacher Conferences 6:00-8:30 |
| F | 03/30/12 | How do we find the value of trigonometric functions of double angles?  Students will be able to  1. apply the formulas for sin(A+B), cos (A+B) and tan(A+B) to discover the formulas for the sin (2x), cos(2x) and tan(2x)  2. verify the validity of the formula for the sine, cosine and tangent of the angle 2x  3. apply the formulas for sin(2x), cos (2x) and tan(2x) to find the exact value of expressions involving angles measured in radians and in  degrees  4. state the double angle formulas in words | A2.A77 | Parent teacher Conferences 1:00-3:00 |
| M | 04/02/12 | How do we find the value of trigonometric functions of half angles?  1. discover the half-angle formulas  2. verify the validity of the formula for the sine, cosine and tangent of the angle ½ x  3. apply the formulas for sin(½ x), cos (½ x) and tan(½ x) to find the exact value of expressions involving angles measured in radians and in  degrees  4. state the half angle formulas in words | A2.A77 |  |
| T | 04/03/12 | How do we apply the double angle formulas to solve trigonometric equations?  Students will be able to  1. state the trigonometric formulas involving double angles  2. decide which double angle formula is needed to solve a trigonometric equation  3. solve trigonometric equations using double angle formulas  4. express solutions to the required degree of accuracy in the specified interval  Writing Exercise:  1. Explain why is cos 2*x* =1− 2sin2 *x* , a better choice to use than cos 2*x* = 2cos2 *x* −1 in order to solve cos 2*x* + sin *x* + 3 = 0 .  2. Since there are three expansion formulas for y=cos 2θ , how we decide which formula substitution is best to use when solving a trig  equation containing cos 2θ ? Give one or more examples. | A2.A68 |  |
| W | 04/04/12 | Concept review |  |  |
| Th | 04/05/12 | Trigonometric Formula test |  |  |
| F | 04/06/12 | Spring Break |  | Spring Break |
| M | 04/16/12 | How can the prerequisite skills needed for sequences and series be reviewed? | A2.A29  A2.A30  A2.A32 |  |
| TT | 04/17/12 | How can sequences and series be recognized and applied? | A2.A29  A2.A30  A2.A32 |  |
| W | 04/18/12 | Aim: How do we use an arithmetic sequence to solve problems?  Students will be able to:  1. define what is meant by an arithmetic sequence and its common difference  2. determine whether a given sequence is an arithmetic sequence  3. determine the common difference, d, for the nth term of an arithmetic sequence  4. discover the formula for the nth term of an arithmetic sequence, an = a1 + (n-1)d  5. explain how to find a specified term of an arithmetic sequence  6. solve numeric, algebraic, and verbal problems using the relationship an = a1 + (n-1)d for a arithmetic sequence  Writing exercise: How you can tell whether a sequence is an arithmetic sequence? | A2.A29  A2.A30  A2.A32 |  |
| Th | 04/19/12 | Aim: How do we find the sum of the first n terms of an arithmetic series?  Students will be able to:  1. define series and arithmetic series  2. compare and contrast an arithmetic sequence and an arithmetic series  3. explore and discover the formula sn = 2  *n* (a1 + an) for finding the sum of the first n terms of an arithmetic series  4. apply the formula sn = 2  *n* (a1 + an) to problems when given as a sum or described verbally  Writing Exercise: Describe a method for quickly finding the sum of all the natural numbers from 1 to 100. Explain why your method works. | A2.A35 |  |
| F | 04/20/12 | Formative Assessment Arithmetic Sequences and Series |  |  |
| M | 04/23/12 | Aim: How do we use a geometric sequence to solve problems?  Students will be able to:  1. define what is meant by a geometric sequence and its common ratio.  2. determine whether a given sequence is a geometric sequence, an arithmetic sequence, or neither  3. determine the common ratio, r, for the nth term of a geometric sequence  4. discover the formula for the nth term of a geometric sequence, an = a1rn-1  5. explain how to find a specified term of a geometric sequence  6. solve numeric, algebraic, and verbal problems using the relationship an = a1rn-1 for a geometric sequence  Writing exercise: How you can tell whether a sequence is a geometric sequence? Compare and contrast an arithmetic sequence to a  geometric sequence. | A2.A29  A2.A31  A2.A32 |  |
| T | 04/24/12 | Aim: How do we determine the sum of the first n terms of a geometric series?  Students will be able to:  1. define geometric series  2. compare and contrast a geometric sequence and a geometric series  3. explore and discover the formula  for finding the sum of n terms of a geometric series  4. apply the formula to problems when given as a sum or described verbally  Writing Exercise: Describe a real-world situation that involves finding the sum of a geometric series. Indicate what the common ratio is in  your description. | A2.A35 |  |
| W | 04/25/12 | Aim: How can we use summation notation to represent a series?  Students will be able to:  1. define summand, limits of summation, and index  2. use summation notation to represent a series of n-terms for arithmetic, geometric, linear, quadratic, trigonometric, imaginary series  3. find the sum of n-terms of an arithmetic or geometric series given in summation notation  Writing Exercise: Many letters of the Greek alphabet are used to represent mathematical ideas. List three such letters and describe the  mathematical ideas they are used to represent. | A2.A34  A2.A35  A2.N10 |  |
| Th | 04/26/12 | Aim: How do we specify the terms of a sequence by relating them to previous terms?  Students will be able to:  1. define recursion  2. write the terms of a sequence given a recursive rule and the first term  3. write a recursive rule for a given sequence  Writing Exercise: When should a recursive rule be used to indicate a sequence rather than an explicit rule in terms of n?  Writing Project: How is recursion used to generate the Fibonacci numbers? What are the Fibonacci numbers? Describe their origin and  occurrences in the real-world. | A2.A33 |  |
| F | 04/27/12 | Formative assessment of geometric sequences and series |  |  |
| M | 04/30/12 | Review of sequences and series |  |  |
| T | 05/01/12 | Summative Exam |  |  |
| W | 05/02/12 | Aim: How do we compute theoretical, empirical and geometric probability?  Students will be able to:  1. differentiate between empirical and theoretical probability  2. state the Counting Principle  3. compute theoretical probability using the Counting Principle  4. compute geometric probabilities such as finding the probability that a randomly selected point will lie inside of a geometric figure  5. perform experiments to approximate a probability empirically  6. use the graphing calculator’s random number generator to simulate experiments  7. find the probability of a complement of an event  Writing exercises: Explain how we could use geometric probability to approximate the value of π . | A2.S13  A2.S14 |  |
| Th | 05/03/12 | Aim: How do we use the Fundamental Counting Principle to determine the number of elements in a sample space?  Students will be able to:  1. state and apply the Counting Principle to specific problems  2. define independent event, dependent event  3. explain what is meant by sampling with and without replacement  4. apply the counting principal to find probabilities of compound events  Writing exercise: When one event is made up of a series of choices, we can often make a tree diagram to illustrate all the possible ways the  event can occur. How does the tree diagram support the principle that multiplication can be used to compute the total  number ways the event can occur? | A2.S12 |  |
| F | 05/04/12 | End Marking Period 2  Aim: How do we solve problems using permutations?  Students will be able to:  1. define permutation, factorial (!), nPn = n!, and nPr  2. apply factorials to compute the number of arrangements of n different objects taken n at a time  3. compute the number of permutations of n things taken n at a time  4. employ the notation nPr in solving problems involving n things taken r at a time  5. compute the number of permutations involving n things taken r at a time  6. discover a formula for the number of permutations of n objects with r of them identical  7. apply the counting principle along with permutations to count the elements in a sample space  8. use the calculator to compute permutations and factorials  9. use permutations with and without the counting principle to determine the probability of an event  10. use the calculator to compute permutations  Writing Exercise:  1. Explain the meaning of a permutation.  2. Make up a problem in which the permutation formula would be used to solve it. | A2.S9  A2.S10 |  |
| M | 05/07/12 | Aim: How do we use combinations to solve probability problems?  Students will be able to:  1. define a combination  2. discover a formula for the combination of n different objects taken r at a time  3. identify the notations used with combinations  4. explain the circumstances under which a permutation should be used or under which a combination should be used  5. apply the combination formula  6. apply the counting principle along with combinations to count the elements in a sample space  7. use the calculator to compute combinations  8. use combinations to solve probability problems  Writing exercise: The lock on your gym locker is probably called a combination lock It needs a sequence of numbers rather than a key to  open it. Is the word “combination” an appropriate description or would “permutation” lock be a more mathematically  accurate name? Explain. | A2.S9  A2.S11 |  |
| T | 05/08/12 | Aim: How do we find the probability of a specific number of successes when an experiment is repeated n times?  Students will be able to  1. explain what types of problems are Bernoulli experiments  2. discover the formula for computing exactly r successes in n independent trials  3. compute exactly r successes in n independent trials by using the Bernoulli formula  Writing Exercise: Explain the necessary conditions for applying the Bernoulli formula to finding the probability of a particular event. | A2.S15 |  |
| W | 05/09/12 | Aim: How do we use Bernoulli’s Theorem to solve problems involving “at most” and “at least”?  Students will be able to  1. investigate the meaning of *at least* and *at most*  2. express *at least* and *at most* Bernoulli experiments as the sum of the appropriate probabilities  3. solve Bernoulli problems involving *at least* and *at most*  Writing Exercise: How are the phrases “at most three days” and “at least three days” different? How does this difference impact on a  Bernoulli experiment? | A2.S15 |  |
| Th | 05/10/12 | Aim: What is meant by the Binomial Theorem?  Students will be able to  1. construct the first n rows of Pascal’s Triangle  2. apply Pascal's Triangle to determine the coefficients of a binomial expansion  3. discover the patterns in the expansion of (*x* + *y*)*n*  4. apply combinations to determine the coefficients of a binomial expansion  5. apply the Binomial Theorem to expand binomials  Writing Exercise: How do the rows of Pascal’s Triangle help in understanding the Binomial Theorem? | A2.S15  A2.A36 |  |
| F | 05/11/12 | Aim: How do we find a specific term of a binomial expansion?  Students will be able to  1. determine the middle term of an expanded binomial by using the Binomial Theorem  2. determine a specific term of an expanded binomial by using the Binomial Theorem  Writing Exercise: Explain what would happen if (*x* + *y*)−3 were expanded using the Binomial Theorem. | A2.A36 |  |
| M | 05/14/12 | Aim : How do we design an unbiased study?  The students will be able to:  1. distinguish among the different kinds of studies (survey, observation, controlled experiment)  2. determine factors that may affect the outcome of each type of survey  3. from given descriptions of surveys explain why they fit the model of a specific type of study  4. explain the meaning of population and sample  5. tell whether a given method of data collection uses a population or a sample  6. given a variety of situations, determine which type of data collection should be implemented  Writing exercises:  1. Suppose you were one of the students in charge of planning the senior trip. The choices are: a baseball fantasy camp, Colonial  Williamsburg, or Disney World. For each of these choices, explain how you would design a study that would be BIASED so that it  would lead people to believe that most of the seniors want to go on that particular trip.  2. A group of eight students decided that they wanted to lose weight. Four of them decided to walk a mile each school day before school.  The other four of them decided to walk a mile each school day after school. All eight weigh themselves each Wednesday and report their  weight to their math teacher, who is keeping it confidential. One student in the class says this is an experiment. A second student  disagrees and says this is an observational study. A third student thinks this is just a survey. Write a paragraph to explain why you  believe the study is an experiment, an observational study, or a survey. Be clear and concise | A2.S1  A2.S2 |  |
| T | 05/15/12 | Aim: How do we organize data using frequency tables, stem-and-leaf plots, and histograms?  Students will be able to  1. organize data in a frequency table  2. draw a histogram by hand for a given set of data  3. use the graphing calculator to draw a histogram for a given set of data  4. organize data in a stem and leaf plot  5. compare and contrast the advantages of organizing data in frequency tables, stem-and leaf-plots, and histograms  6. define mean, median, and mode  7. find the missing value in a data table given the mean, median and/or mode | A2.S3 |  |
| W | 05/16/12 | Aim: How do we apply measures of central tendency to solve problems?  The students will be able to:  1. explain what is meant by grouped data  2. define mean, median, and mode  3. calculate mean, median, and mode from a grouped frequency distribution chart  4. calculate mean, median, and mode from stem and leaf plot  5. use the calculator to compute mean, median, and mode  6. compute weighted averages  7. apply measures of central tendency to solve problems  Writing Exercise: Your test scores are 100,100,100,100,100,100,100,100,50, and 50. All were full period tests weighed equally. Your  teacher claims that your average is 75 since your average on the first 8 exams was 100 and your average on the last 2  exams was 50. Explain how you would argue that this is incorrect. | A2.S3 |  |
| Th | 05/17/12 | Aim: How do we use measures of dispersion: range, variance, and standard deviation?  The students will be able to:  1. define range, absolute deviation, variance and standard deviation  2. compare and contrast the meaning of sample and population  3. use a graphing calculator to calculate range, variance and standard deviation for both samples and populations  4. apply measures of dispersion to real-world problems  5. interpret meaning of measures of dispersion in real world situations  Writing Exercise: The mean for a math test and for a science test were each 80. The standard deviation of the math test was three and of the  science test was five. If Beverly scored an 87 on each test, in which class did she do better when compared to her  classmates? Explain your answer. | A2.S4 |  |
| F | 05/18/12 | Aim: How do we use measures of dispersion for grouped data?  Students will be able to:  1. explain what is meant by grouped data, quartiles, and interquartile range  2. calculate quartiles and interquartile range, for both samples and populations, manually and using the graphing calculator  3. construct and interpret box and whisker plots  4. compute the standard deviation for grouped data of samples and populations  5. apply measures of dispersion in real world situations  6. find the missing value in a data table given a measure of central tendency and the standard deviation  Writing exercise: The 5 numbers in the set {3, 4, 7, x, y} have a mean of 5 and a standard deviation of 2. If y > x, what is the value of x and  y? Explain fully. | A2.S4 |  |
| M | 05/21/12 | Aim : How do we apply the characteristics of a normal distribution?  The students will be able to:  1. explain the properties of a normal distribution  2. apply the normal distribution to determine probabilities  3. determine what percent of normally distributed data is within a certain range given information about the mean and standard deviation  4. apply percentiles to the normal distribution  5. solve real world problems involving normal distributions  Writing Exercise: How would an understanding of the normal distribution help the owner of a Big & Tall Men’s Shoe store to stock the  correct inventory of shoe sizes for his customers? | A2.S5 |  |
| T | 05/22/12 | Aim: How do z-scores help us to compare different data sets?  The students will be able to:  1. define a z-score  2. compute the z-score for a data value  3. use the z-scores for individual data points to compare percentile ranks in different data sets  4. use z-scores in real world problems  Writing Exercise: The SAT and the ACT are two different exams that students take when preparing to apply for colleges in the United States.  The score range for these exams are very different. Describe how the admissions offices of a college can use the z-score  is used to compare the academic standings of students who took the SAT to students who took the ACT. | A2S5 |  |
| W | 05/23/12 | Aim: How do we use the normal distribution as an approximation for binomial probabilities?  The students will be able to:  1. interpret the area under a normal curve as a probability  2. interpret a binomial probability as a histogram and an approximation of the normal curve  3. find the mean and standard deviation of a binomial distribution  4. use the graphing calculator’s normal cumulative density function feature (normalcdf) to approximate probabilities of Bernoulli trials  involving “at least” and “at most.”  Writing Exercise: Give an example of an experiment where it is appropriate to use a normal distribution as an approximation for a binomial  probability. Explain why in this example an approximation of the probability is a better approach than finding the exact  probability. | A2.S16 |  |
| Th | 05/24/12 | Review |  |  |
| F | 05/25/12 | Assessment |  |  |
| M | 05/28/12 | MEMORIAL DAY |  |  |
| T | 05/29/12 | Regent’s Review |  |  |
| W | 05/30/12 | Regent’s Review |  |  |
| Th | 05/31/12 | Regent’s Review |  |  |
| F | 06/01/12 | Regent’s Review |  |  |
| M | 06/04/12 | Summative Exam |  |  |
| T | 06/05/12 | Regent’s Review |  |  |
| W | 06/06/12 | Regent’s Review |  |  |
| Th | 06/07/12 | No Classes Chancellor’s Conference Day |  |  |
| F | 06/08/12 | End of Marking Period 3  Regent’s Review |  |  |
| M | 06/11/12 | Regent’s Review |  |  |
| T | 06/12/12 | Regent’s Review |  |  |
| W | 06/13/12 | REGENTS EXAMS |  |  |
| Th | 06/14/12 | REGENTS EXAMS |  |  |
| F | 06/15/12 | REGENTS EXAMS |  |  |
| M | 06/18/12 | REGENTS EXAMS |  |  |
| T | 06/19/12 | REGENTS EXAMS |  |  |
| W | 06/20/12 | REGENTS EXAMS |  |  |
| Th | 06/21/12 | REGENTS EXAMS |  |  |
| F | 06/22/12 | RATING DAY |  |  |
| M | 06/25/12 |  |  |  |
| T | 06/26/12 |  |  |  |
| W | 06/27/12 | Last Day of School |  |  |
| Th |  |  |  |  |
| F |  |  |  |  |
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