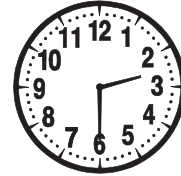


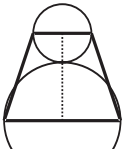
Warm-Up 9

1. combos A jar contains 100 red marbles, 100 blue marbles and 100 white marbles. All 300 marbles are the same size. How many distinct color combinations are possible when three marbles are selected from the jar? The order in which the marbles are selected does not matter.

2. degrees How many degrees are there in the smallest angle between the two hands of a clock at 2:30?



3. A positive 16-digit integer is such that any two consecutive digits form a multiple of either 19 or 31. If the digit 2 appears only once, what is the sum of the 16 digits?

4. sq units  Two non-congruent circles are externally tangent to each other. Each base of an isosceles trapezoid is a diameter of one of the circles. If the distance between the centers of the circles is 9 units, what is the area of the trapezoid?

5. gallons To create a unique house paint color, Melton mixes together a sample that is 12 gallons of red, 2.5 gallons of yellow and 0.5 gallons of blue paint. He then mixes a main batch of paint using 30 gallons of yellow paint and enough red and blue paint so as to maintain the original ratio. How many total gallons of paint did he use when making the sample and the main batch?



6. In a math class, each student's final grade is the average of the scores on n tests. If Alfred makes a 97 on the last test, his grade will be exactly 90. If he makes a 73 on the last test, his grade will be exactly 87. What is the value of n ?

7. units The dimensions of two boxes are a by b by c and d by e by f , respectively. If $a < c$, $d < b$, $e < a$, $b < e$ and $a < f$, what is the diameter of the largest ball that can fit into both boxes? Express your answer in terms of a , b , c , d , e and/or f .

8. The original price of an item is reduced by 20%. This reduced price is then lowered by 10%, and finally this newest price is reduced by 50% to get a final selling price. What fraction of the original price is the final selling price? Express your answer as a common fraction.

9. In an arithmetic sequence, the sum of the 8th and 9th terms is 40, and the sum of the 9th and 10th terms is 48. What is the positive difference between the 8th and 9th terms in this sequence?

10. (,) The graphs of $y = 2x^3$ and $y = 3x^2$ intersect at $(0, 0)$ and at what other point? Express your answer as an ordered pair of common-fraction coordinates.