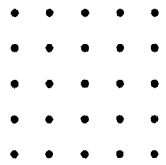
Warm-Up 7

101. _____ points In a talent contest involving three finalists, audience members vote for first, second and third place by assigning each a 1, 2 or 3, respectively. When all the votes have been totaled, the finalist with the lowest total wins. If 100 audience members vote and there are no ties in the outcome, what is the greatest number of points that the winner can get?

102. _____ lengths Segments of how many distinct positive lengths can be drawn using pairs of points in this 5 × 5 evenly spaced grid as endpoints?



103. _____ minutes The time it takes a cube of ice to melt at a certain temperature varies directly with the surface area of the cube. If it takes 3 hours for a 1-foot cube of ice to melt, how many minutes will it take a 1-inch cube of ice to melt if the temperature remains constant? Express your answer as a decimal to the nearest hundredth.

104. _____ The mean score on the last test in Ms. McMean's class of 24 students is 88. If the four lowest scores are excluded, the mean is 94. If the four highest scores are excluded, the mean is 86. What is the absolute difference between the means of the four highest and four lowest test scores?

105. _____ feet A ball is released from a height of 16 feet, and each time it strikes the ground, it bounces back to a height one-fourth of its previous height. At the instant when the ball strikes the ground for the fifth time, how many total feet has it traveled since it was released? Express your answer as a mixed number.

106. _____ A passenger jet flies a certain distance in 3 hours 30 minutes when traveling west to east. The same distance from east to west requires 4 hours 15 minutes. What is the ratio of the passenger jet's speed going east to the speed going west? Express your answer as a common fraction.

107. _____ lengths In triangle ABC with acute angle BAC, the lengths of sides AB and BC are 15 units and 16 units, respectively. How many possible integer lengths are there for side AC?

108. _____ If $X \# Y = \frac{X}{Y} + XY$, what is the value of 15 # (6 # 2)?

109. _____ % When Jose looked at the clock, he noticed that 20% of the total time from 4:00 p.m. to 5:00 p.m. had elapsed. What percent of the time from 1:00 p.m. to 6:00 p.m. had elapsed, when Jose looked at the clock?

110. _____ combinations In the country of Woodington, three denominations of coins are used to pay for goods and services. Each coin has a value of 1 dollar, 3 dollars or 7 dollars. How many different combinations of coins can be used to pay exactly 15 dollars in Woodington?