# Warm-Up 9
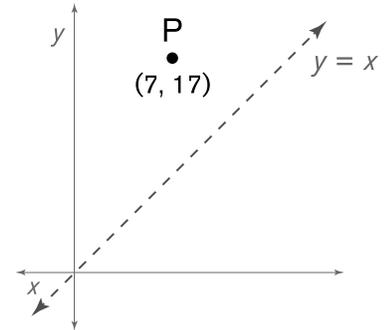
111._____ Andrew rolls a fair standard six-sided die five times. What is the probability that the sum of the five die rolls is divisible by 3? Express your answer as a common fraction.

112._____ units The point P has coordinates (7, 17). If point Q is the reflection of point P across the line $y = x$, and point R is the reflection of point P across the $y$-axis, what is the length of segment QR?

113._____ What is $111^2 - 99^2$?

114._____ The number 2401 is a perfect square whose nonzero digits are all powers of 2. What is the largest three-digit perfect square with this property?

115._____ A fair standard six-sided die is rolled three times and the sum of the three numbers thrown is 15. What is the probability that the number on the first roll is 4? Express your answer as a common fraction.

116._____ % A small hose fills a swimming pool in 20 hours, and a large hose fills the same pool in 16 hours. Starting with an empty pool, the small hose is turned on at 8:00 a.m., and the large hose is turned on at 12:00 p.m. Both hoses run until 4:00 p.m., when they are both turned off. What percent of the pool is filled by 4:00 p.m.?

117._____ Person A tells the truth 75% of the time, while Person B tells the truth 80% of the time. If both describe the same incident, what is the probability that their statements will contradict each other, meaning one tells the truth and the other lies? Express your answer as a common fraction.

118._____ An arithmetic sequence consists entirely of positive integers. The third term is equal to the sum of the first two terms, and the fourth term is equal to the product of the first two terms. What is the fifth term of this sequence?

119._____ cm² Rectangle ABCD has AB = 5 cm and BC = 3 cm. Points E and F lie on sides AB and BC, respectively, so that AE = CF = 1 cm. What is the area of pentagon AEFCD, in square centimeters?
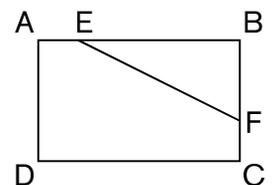
120._____ What is the value of $13^2 - 12^2 - 5^2$?