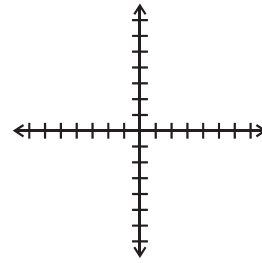# Warm-Up 3

1. _____ sq units What is the area of the circle that is centered at the origin and is tangent to the line $y = 7$? Express your answer in terms of π.

2. _____ When the expression $3^{444} + 4^{333}$ is written as an integer, what is the units digit?

3. _____ The sum of three numbers is 98. The ratio of the first to the second is 2:3, and the ratio of the second to the third is 5:8. What is the value of the second number?

4. _____ What is the value of $-(1^{2008}) + (-1)^{2007}$?

5. _____ cups A cider recipe created by the Xpress Co. combines nine cups of applesauce with one cup of water. The mixture is brought to a boil and then simmered until the volume is reduced by 15%. If a cider batch begins with 36 cups of applesauce, how much cider will there be after the appropriate amount of water is added and the simmering process is complete?

6. _____ A total of 180 marbles (gray, white and black) are placed in a line. The first five are gray, followed by four white, followed by three black, followed by five gray, followed by four white, followed by three black, … . If this pattern continues, what is the color of the 158th marble in this line?

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7. _____ What is the value of n for which $(3!)(5!)(7!) = n!$?

8. _____ inches A regular hexagon is inscribed in a circle of radius four inches. What is the perimeter of the hexagon?

9. _____ If a standard six-sided die is rolled twice, what is the probability that the result of the second roll is not less than the result of the first roll? Express your answer as a common fraction.

10. _____ squares If only squares may be used, how many squares must be placed on the right side of the third scale so that all three scales are balanced? (The distance of the objects from the centers of these scales is not relevant.)