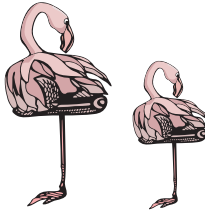
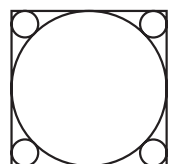




Workout 8

1. _____ What is the sum of all the positive three-digit integers formed using the digits 1, 3, 5, 7 and 9 without repetition of a digit in any of the integers? For example, 135 can be used, but 113 can't be used.


2. _____ feet  A 20-pound flamingo stands 3.0 feet in height. If the dimensions and densities of all flamingos are similar, what is the height, in feet, of a 100-pound flamingo? Express your answer as a decimal to the nearest tenth.

3. _____ sq cm A circle of radius 10 cm is inscribed in a square. Inside each corner of the square there is another smaller circle that is tangent to the large circle and tangent to two sides of the square, as shown. What is the area, in square centimeters, of one of these smaller circles? Express your answer as a decimal to the nearest tenth. 

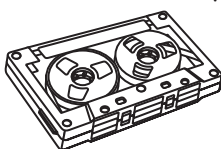
4. _____ sq inches Triangle ABC has $AB = 13$, $BC = 15$ and $CA = 20$. Points X and Y lie on side CA so that $AX = 5$, $XY = 8$ and $YC = 7$. What is the area of $\triangle XBY$ if all the lengths are measured in inches? Express your answer as a common fraction in simplest radical form.

5. _____ grams A cube has edges that are 18 cm long. A triangular pyramid is cut away from each corner so that three of its vertices are midpoints of edges of the cube. What is the weight of the remaining solid, in grams, if it is made of a material that weighs 2 grams per cubic centimeter?

6. _____ The pages of a book are numbered 1 through 500, with the first leaf being numbered 1 on the front and 2 on the back. Two consecutive leaves are torn out of the book and the sum of the remaining page numbers is a perfect square. What is the largest possible sum of the numbers on the missing pages?

7. _____ hours A woman hiked into the countryside. She walked for 1.5 hours at 4 km per hour, rested for three-quarters of an hour and then continued to walk at 2 km per hour. After the woman had been gone for 1.5 hours, an urgent message caused her daughter to start after her on a bicycle at 6 km per hour. From the time the daughter started biking, how many hours did it take her to catch up to her mother? Express your answer as a mixed number. 

8. _____ A standard six-sided die, whose sides are numbered 1, 2, 3, 4, 5 and 6, is rolled three times. What is the probability that the sum of the three numbers rolled is 8? Express your answer as a common fraction.

9. _____ revs  A cassette tape has been completely rewound and is now ready to play from the beginning. The receiving circular core has a diameter of 1 inch. Each complete revolution as the tape plays adds 0.1 inches onto the diameter of the receiving core. What is the minimum number of complete revolutions that must occur for a total of at least 40 inches of tape to be wound around the receiving core?

10. _____ What is the sum of all values of x for which $2^{2x} + 32 = (3)2^{x+2}$?