

Workout 3

- _____ feet The formula for the total surface area of a cylinder is $SA = 2\pi r^2 + 2\pi rh$, where r is the radius and h is the height. A particular solid right cylinder of radius 2 feet has a total surface area of 12π square feet. What is the height of this cylinder?
- _____ A cube varies in size over time, with its largest volume being twice its smallest volume. What is its largest edge length divided by its shortest edge length? Express your answer as a decimal to the nearest hundredth.
- _____ What is the value of $x^5 - 5x$ when $x = 4$?
- _____ % Alicia recorded the statistics below at last night's basketball game. The percents were rounded to the nearest whole number, and only whole numbers of shots could be successful. What percent of the 45 attempted shots were successful?

Player Name	2-Point Shots		3-Point Shots	
	Attempted	% Successful	Attempted	% Successful
Lisette	15	67	5	40
Sara	10	80	2	50
Jen	4	75	1	0
Tai	6	33	2	50

- _____ The Moisture Co. produces wipes that are sold 70 to a rectangular carton measuring 6" by 4" by 2". The carton is completely filled. The company wants to sell a carton with dimensions 6" by 4" by y " containing 100 wipes. What is the least possible value of y ? Express your answer as a decimal to the nearest tenth.
- _____ If $40\blacklozenge$ represents a positive three-digit integer with a ones digit of \blacklozenge , and $1\blacklozenge$ is a positive two-digit integer with a ones digit of \blacklozenge , what value of \blacklozenge makes the equation $40\blacklozenge \div 27 = 1\blacklozenge$ true?
- _____ inches A straight, vertical 43-inch wick was lit from the top and burned downward at a constant rate of 1.5 inches per hour. Three hours later, the bottom of the wick also was lit, and it burned upward at a constant rate of 4.0 inches per hour. How many total inches had the top of the wick burned down when the burning ends met?
- _____ The sum of four consecutive integers is 2. What is the smallest of the four integers?
- _____ feet per second The distance traveled by a ball rolling down a ramp is given by the equation $s(t) = 5t^2$, where t is the time after the ball is released, in seconds, and $s(t)$ is measured in feet. What is the average speed of the ball for the time $t = 3$ through $t = 4.5$? Express your answer as a decimal to the nearest tenth.
- _____ sq in In triangle ABC the length of the altitude to side AB is 6 inches, and the measures of angles A and B are 45 degrees and 60 degrees, respectively. What is the area of triangle ABC? Express your answer as a decimal to the nearest tenth.

Problem #6 is from the Team Round of the 2007 MATHCOUNTS Chapter Competition.