MCT 4C
Mr. Kempe

Name: _____
Due: _____

# Assignment #4 – Time to Measure Up!

[30 marks]

Assignment Objective

- Complete 4 or 6 "A" Questions [K/U, 8 marks]
- Complete 3 of 4 "B" Questions [ATIPS, 12 marks]
- Complete 1 of 2 "C" Questions [C, 5 marks]
- An additional 5 marks will be awarded based on how well your solutions are presented. [C, 5]

If you complete extra questions in "A" or "B", you will be give the "best of" marks.
Do not complete more than one "C" question. If you do, I will mark the first one in the assignment, and ignore the second.

Part A: That's a Fact(orial)! [K/U, 2 marks each]

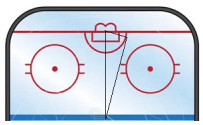
1. A room that measures _____ ft. by _____ ft. is to be covered with vinyl flooring that costs $_____/m². Determine the cost to cover the floor of this room.

2. The cone of a sno-cone has a diameter of _____ cm and a height of _____ cm. What volume of "sno" is sitting in the sno-cone pictured?

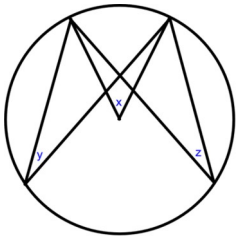
3. A slice of cheesecake is to be wrapped in wax paper for transport. The original cake was ____ in. across and ____ in. thick and was cut into _____ pieces. What is the least amount of wax paper needed to cover the slice of cake?

4. If the radius of Pac-Man's mouth is _____ cm and his mouth is open at an angle of _____°, what is the perimeter of Pac-Man?

5. A hockey player is standing on center of the blue line, _____ ft front of the goal. They pass the puck to a team-mate at the edge of the goalie circle (_____ ft radius) such that the pass is tangent to the circle. How long (in ft.) is the pass?



6. In the diagram,_____. Determine the value of the other indicated angles.



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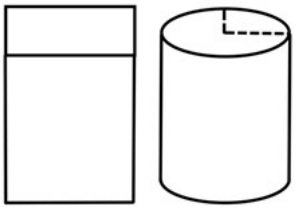
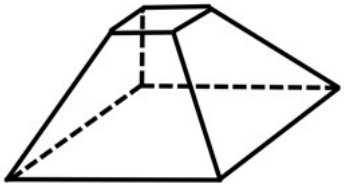
Part B: The First Difference is the Biggest One [ATIPS, 4 marks each]

1. Mr. Kempe has two storage containers for rice: a rectangular prism with dimensions of _____ cm ×_____cm × _____cm, and a cylindrical one (with an ellipse for the base) that just fits inside the prism. If the cylinder is filled with rice, and then poured into the rectangular prism...

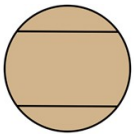


   a. What is the height of the rice in the rectangular prism?
   b. How much more rice could be put into the rectangular prism?

2. The lampshade shown has a small square-shaped hole on the top and a large square-shaped hole on the bottom. The width of the small square is _____ in., the large square, _____ in., and the height of the lampshade is _____ in. If the material for the lampshade costs $_____ per square yard, determine the cost of producing 100 lampshades.



3. A circular table top has a diameter of _____ inches. Two segments, each with a central angle of _____° are hinged to fold down. What percent of the tabletop remains when the segments are folded down?



4. In the diagram, AB is the shortest distance to the edge of the circle, and AC is tangent to the circle. If AB = _____ and AC = _____, ...
   a. Determine the radius of the circle.
   b. Determine the length of arc BC.

Part C: Bad Habits? End that Behaviour! [C, 5 marks]

1. Create some kind of presentable material (poster, Google Slide, comic, poem, etc) that explains any three circle properties we have learned in this section. Points will be awarded for accuracy [3], creativity [1], and polish [1].

2. Another 3-D solid is a frustum. The lampshape in question B2 is a frustum, as is a Rolo™ candy.

   1. Do a little research and find formulas for the volume and surface area of a cylindrical frustum (Rolo).
   2. A giant Rolo candy is 12in. tall, and its radii are 6in and 7in, respectively. Determine the volume and surface area of this giant Rolo.