

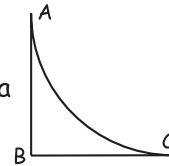
# Workout 7

1. \_\_\_\_\_ What is the value of  $(1 + 2 + 3) + (2 + 3 + 4) + (3 + 4 + 5) + \dots + (38 + 39 + 40) + (39 + 40 + 41)$ ?
2. \_\_\_\_\_ sides If the sum of the interior angles of a particular convex polygon is  $9720^\circ$ , how many sides does the polygon have?
3. \$ \_\_\_\_\_ The 442 students and 40 staff of Beckwith School are planning a trip. Each person can go by bus or train. Using the information below, what is the least possible average cost per person for them to make this trip?

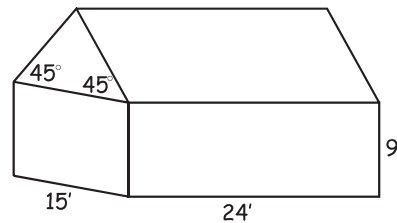
Trailmore Bus Lines	Arca Trains
Large Bus: \$1025; holds up to 64 passengers	\$20 per person for first 100 passengers
Medium Bus: \$792; holds up to 36 passengers	\$18 per person for next 300 passengers
	\$16 per person for all passengers over 400

4. \_\_\_\_\_ people When a survey of 800 people was done, 55% of those surveyed said they ate candy, 65% said they ate chips and 90% said they ate hotdogs. What is the smallest possible number of people who said they ate candy, chips and hotdogs?
5. \_\_\_\_\_ cm A right circular cone has a base circumference of  $24\pi$  cm and a volume of  $1512\pi$  cm<sup>3</sup>. The cone is cut parallel to its base, and the newly formed shorter cone has a volume of  $56\pi$  cm<sup>3</sup>. What is the height of the shorter cone? Express your answer as a decimal to the nearest tenth.

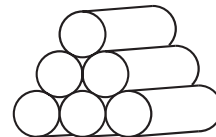
6. \_\_\_\_\_ sq feet The front view of a metal sculpture is the region ABC shown, with  $AB = BC = 22$  feet and segment AB perpendicular to segment BC. Points A and C are the endpoints of a quarter-circle. What is the area of region ABC? Express your answer to the nearest whole number.



7. \_\_\_\_\_ cu ft Leonard wishes to purchase an air purifier for a small building. He needs to determine the volume of air inside the building in order to decide which model to purchase. The building is a triangular-based right prism on top of a right rectangular prism, with measurements as shown. How many cubic feet of air are in the entire building?



8. \_\_\_\_\_ What is the sum of the 13 smallest positive palindromes that have a tens digit of 3 and a ones digit of 7?
9. \_\_\_\_\_ feet Six pipes each having a radius of 0.5 feet are stacked in a triangular pile with three pipes on the ground tangent to each other, two in the next row and then one on top. What is the height of the pile? Express your answer in simplest radical form.



10. \_\_\_\_\_ units The side lengths of a right triangle are each an integral number of units. If one of the legs is 13 units, what is the perimeter of the triangle?