First name: _____ Last name: _____ Student ID: _____

Geometry 1 Homework

Basic problems

1. Fill in the missing values for a rectangular prism. Show work!

1.	length	14.6	2.	length	_____	3.	length	2
	width	1.7		width	1		width	_____
	height	8		height	14		height	10
	surface area	_____		surface area	418		surface area	190.24
	volume	_____		volume	_____		volume	_____

2. Find the missing measurement of each trapezoid. Show work!

1.	2.	3.
height = 24.3 mm	height = _____	height = 7 mm
b_1 = 9.9 mm	b_1 = 10 m	b_1 = 19 mm
b_2 = 15.1 mm	b_2 = 5 m	b_2 = _____
area = _____	area = 157.5 m^2	area = 157.5 mm^2

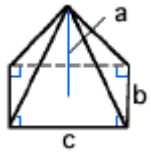
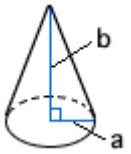
3. Find the missing length for each right triangle with c as the hypotenuse. No decimals! Show work!

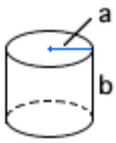
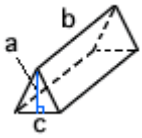
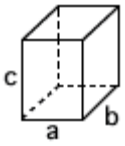
1. a = 23 b = _____ c = $\sqrt{554}$	2. a = _____ b = 14 c = $10\sqrt{2}$	3. a = 9 b = 3 c = _____

4. Find the circumference and area of each circle. State your answer in terms of π. Show work!

1. radius = 14 m	2. diameter = 3/5 m	3. diameter = 48 cm

5. Find the surface area and volume of each solid. Leave the answer in terms of π.

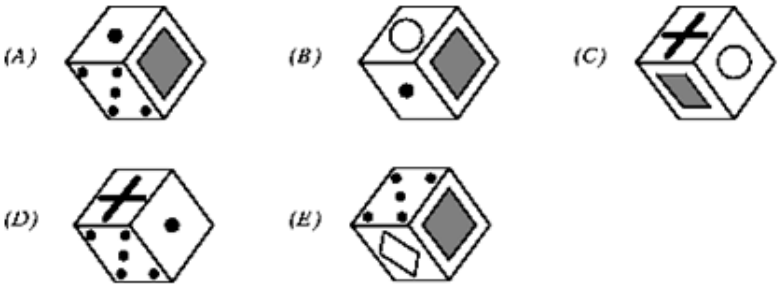
1.  a = 6 km b = 8 km c = 16 km	2.  a = 3 yd b = 4 yd	3.  a = 5 m

4.  a = 1 km b = 16 km	5. Isosceles triangular based prism  a = 5 cm b = 13 cm c = 24 cm	6.  a = 10 ft b = 8 ft c = 4.2 ft

Challenge problems

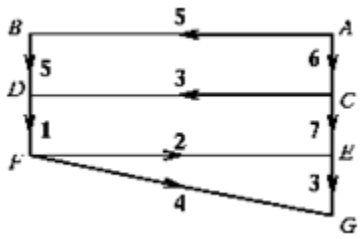
1. A dog runs along a path near a square garden with side length 10m. It runs once around always staying exactly 1m from the edge of the garden. To the nearest meter, how far does the dog run?

2. Just one of the following five pictures of the same cube is impossible. Which picture is impossible?



3. A rectangular box has a volume of 4 m^3. What is the volume of an identically shaped box whose surface area is four times as big?

4. The diagram represents a map with roads connecting some cities. Distances are indicated by the numbers given and travel is only possible in the direction of the arrows. What is the length of the shortest path from city *A* to city *G*?

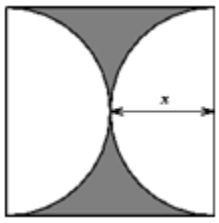


5. A rectangular pool is 8 m wide and 12 m long. A concrete walk of uniform width surrounds the pool. If the total area of the pool and the walk is 320 square meters, how many meters wide is the walk?

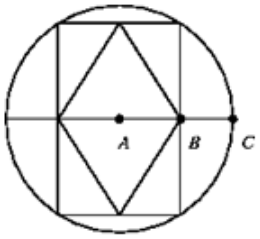
6. A ship sails 14 km due east, 5 km due north, 10 km due west and 8 km due south. How far will the ship be from its original starting point?

7. A carpenter builds a hollow wooden box using wood that is 1 cm thick. How much wood does he use in building a box whose shape is a cube with exterior dimensions of 5 cm on each side?

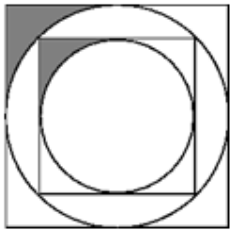
8. In the figure shown at the right, two tangent semi-circles with a radius equal to *x* are inscribed in a square. What is the area of the shaded region?



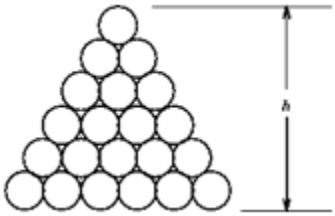
9. A diamond is inscribed in a rectangle which is in turn inscribed in a circle. Find the length of the side of the diamond if the segments *AB* and *BC* measure 5 cm and 4 cm respectively.



10. Two circles occupy the positions shown with respect to the two squares. The two circles are each inscribed in their square and the small square is inscribed in the large circle. What is the difference in the areas of the two shaded regions if the small square has sides which measure 8 cm?



11. Identical circles are piled as illustrated in the figure. The diameter of each circle is 4 cm. What is the height of a pile containing six levels?



12. A blindfolded player throws a dart at the square dartboard shown. If she hits the board 1000 times, approximately how often will she hit the shaded area?