

$$SA_{\text{sphere}} = 4\pi r^2$$

$$LSA_{\text{cone}} = \pi r \ell$$

1. [10 pts - 2 each] Circle the larger/higher measurement in each pair:

- | | | |
|-----|---------------|--------------|
| (a) | 4 <i>ft</i> | 1 <i>m</i> |
| (b) | 1 <i>ft</i> | 15 <i>cm</i> |
| (c) | 50° <i>F</i> | 50° <i>C</i> |
| (d) | 1 <i>gal</i> | 4 <i>ℓ</i> |
| (e) | 200 <i>kg</i> | 1 <i>ton</i> |

2. [10 pts - 2 each] Circle the most meaningful measurement in each list:

- (a) The temperature outside now, on a cool autumn afternoon:

1.5° <i>C</i>	15° <i>C</i>	150° <i>C</i>	1500° <i>C</i>
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- (b) The weight of a newborn kitten:

0.2 <i>g</i>	2 <i>g</i>	0.2 <i>kg</i>	2 <i>kg</i>
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- (c) The height of Bailey Library (the building across the quad):

1.2 <i>cm</i>	12 <i>c</i>	1.2 <i>m</i>	12 <i>m</i>
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- (d) The distance from here to Washington, DC:

5 <i>km</i>	50 <i>km</i>	500 <i>km</i>	5,000 <i>km</i>
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- (e) The volume of the instructor's computer desk in this classroom:

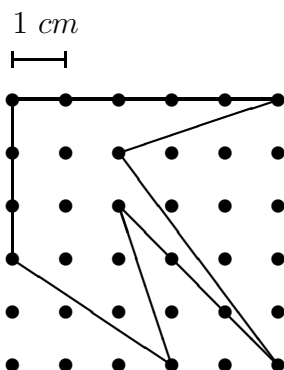
8 <i>ℓ</i>	80 <i>ℓ</i>	8 <i>kℓ</i>	80 <i>kℓ</i>
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3. [6 pts] Carefully and thoroughly explain (in words, although you may refer to diagrams) how many square feet are in one square yard.

4. *[22 pts - 3 or 8 each]* Convert and round as indicated, using any meaningful method. Show work as needed.
- (a) 543.2 cm^2 to dam^2 – do not round
 - (b) 14 pounds, 5 ounces to ounces – do not round
 - (c) 23.6 cents per man-minute to dollars per team-hour – one team equals ten men (people); round meaningfully
 - (d) 3.5 square feet per liter to milliliters per square inch – round to the nearest hundredth
5. *[4 pts]* If the length of a rectangle is doubled and its width is tripled, by what factor has its area increased? Justify your response computationally or verbally.

6. *[4 pts]* A rectangle and a triangle have the same base. If the area of the triangle is 4 times that of the rectangle, how do their heights compare? Justify your response computationally or verbally.

7. *[16 pts - 8 each]* Find the area and perimeter, both rounded to the nearest tenth, of the figure below; show clear work and tell which is which.



8. *[16 pts - 8 each]* Find the area and perimeter, both rounded to the nearest tenth, of the shaded figure below; show clear work and tell which is which.

9. *[12 pts]* Find the surface area, rounded to the nearest tenth, of this solid cylinder with hemispherical cap; show clear work.