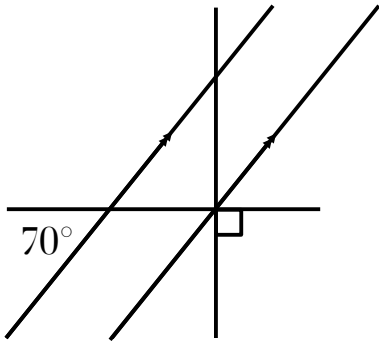
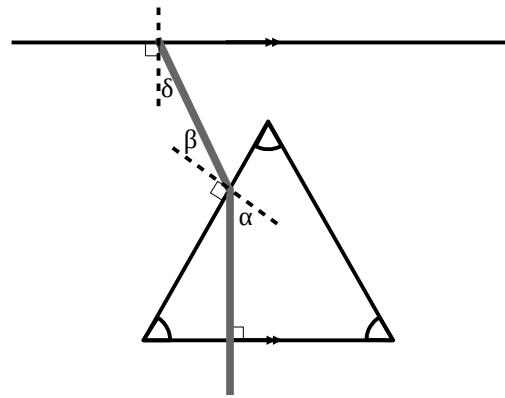


GEOMETRY: ANGLES & TRIANGLES

1) Find the measure of each unlabelled angle.

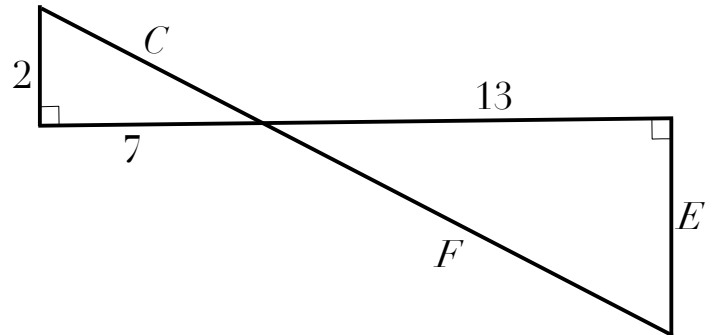
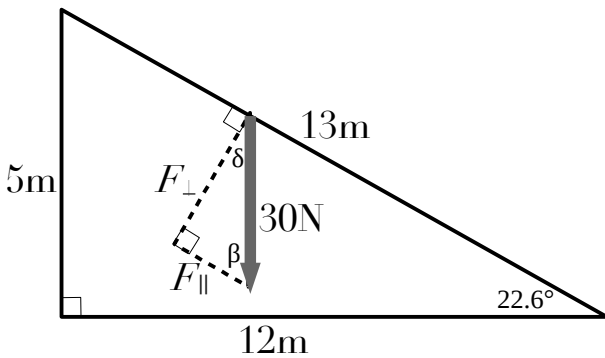


2) Given that β is $\frac{1}{3}$ the size of α : find α , β , and δ .

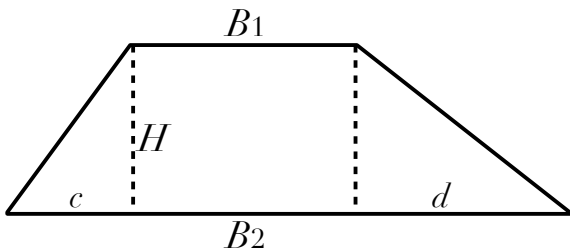


3) Assuming that the 30N force is straight down, find angles β and δ and components F_{\perp} and F_{\parallel} .

4) Find the lengths of sides C , E , and F .



5) Find the area of this trapezoid (in terms of B_1 , B_2 , and H).



You might find it useful to temporarily rewrite B_2 in terms of B_1 , c , and d .

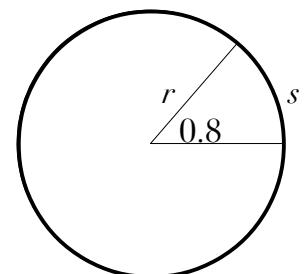
6a) What does an angle measure of “1 degree” mean?

b) What does an angle measure of “1 radian” mean?

c) How many degrees are there in a full revolution? Why?

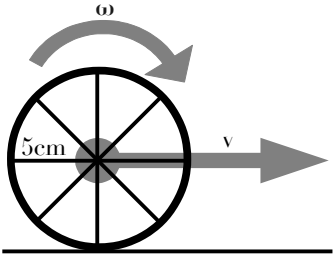
d) How many radians are there in a full revolution? Why?

e) If I describe this angle as having a radian measure of 0.8 radians, what does that actually tell you about it? (Use the labelled variables in your response if that helps.)



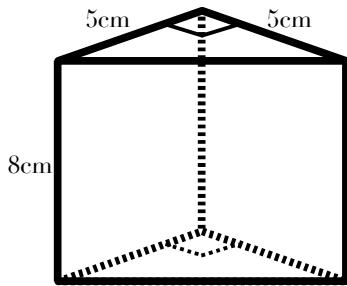
GEOMETRY: CIRCLES & SOLIDS

- 7) Consider a wheel with radius 5cm, rolling on smooth flat ground without slipping.
 (Hint: no slipping means that distance travelled is equivalent to arc length!)

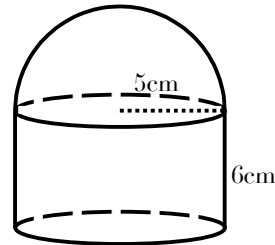


- If the wheel moves forward 3 cm, how much (in radians) has it rotated?
- If the wheel rotates 500° , how far forward has it moved?
- If the wheel is rotating at 3 radians per second, what is its forward speed?
- To move forward at 20 cm/s, how fast must it rotate (in degrees per second)?

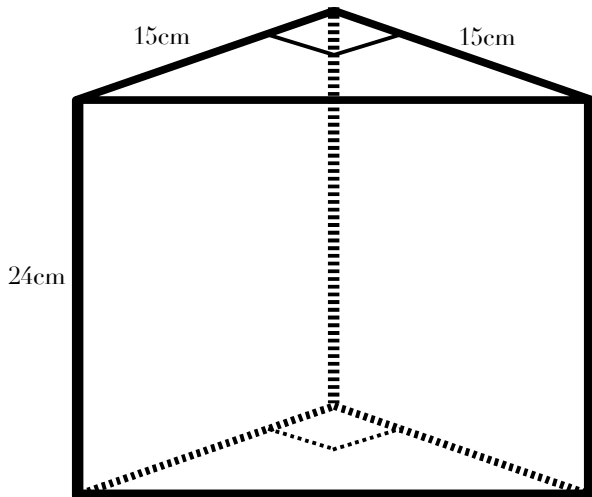
- 8) Find the volume and surface area of this right triangular prism.



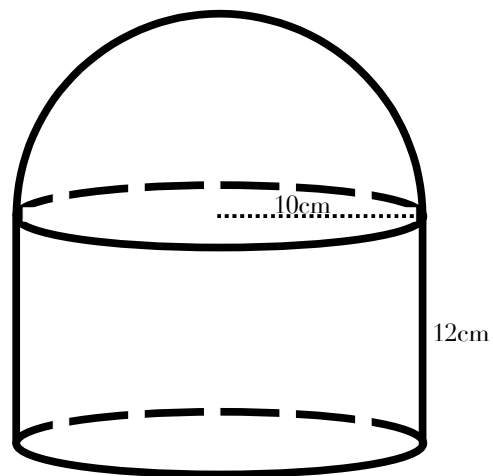
- 9) Find the volume and surface area of this hemisphere-capped cylinder.



- 10) Find the volume and surface area again, with all the lengths tripled.



- 11) Find the volume and surface area again, with all the lengths doubled.



- 12) What happened to the volume and surface area when the lengths doubled? ...when they tripled? Why do you think this happens? (Hint: think multiplicatively, and consider the formulas.) Look up “the square-cube law” online or in a geometry textbook for more information.