1-1-2 Activity

On #1-4, use the structure of multiplication to solve these problems ((# of groups) x (# of objects in each group) = # of objects)).

1. If there are 2.54 cm in every inch, how many inches are in 50 cm? How many cm are in 50 inches?
2. If there are 2.54 cm in every inch, how many square inches are in 50 square cm? How many square cm are in 50 square inches?
3. If there are 2.54 cm in every inch, how many inches are in 50 square cm? How many cm are in 50 square inches?
4. If there are 7.48 gallons in one cubic foot, how many cubic centimeters are there in 500 gallons?
5. Always True or Sometimes False: If the area of Figure A is greater than the area of Figure B, then the perimeter of Figure A must be greater than the area of Figure B.
6. Which is faster: 50 mph or 75 feet per second?
7. (Put in 2-1-2 with slope?) If Francine is working at Red Castle and has $33 at 6PM and $78 at 11PM, how much money has Francine earned from 6PM to 11PM (Show units in your calculation)? At what rate is Francine earning money each hour (show units in your calculation)? Be sure to justify the operations you use (meaning and units of slope).
8. Assume velocity is given in feet per second (How many feet are gained or lost each second = change of position divided by change in time). What should be the unit of acceleration (change of velocity over change in time)? Why does this unit make sense?
9. If the formula at^2 + bt + c gives the height of a ball (in feet) t seconds after being tossed up in the air, what must be the units of the numbers a, b, and c?
10. Sammy can’t remember which of the two formulas: 2πr or πr^2 gives the area of a circle. Assuming that 2 and π do not have units and r is the radius of a circle, which formula could NOT be the area of a circle? Which has a chance to be the area of a circle (and why might it not be)?
11. An angle measured in radians is defined to be the distance traveled around a circle from the initial to terminal side of the angle divided by the radius of the circle. What are the units for a radian?
12. (If time): Penny has an exercise routine. She likes to jog fast at x miles per hour for t hours and jog slow at y miles per hour for s hours. What is her average speed for her routine? (could do with numbers, then variables for the quantities).
13. (If time): Lyla likes to run from her house to the park and back again along the same path every day (Could also use different explicit and implicit distances). If she runs at 2 mph from home to the park and 4 mph from the park to home, what is her average speed for the entire trip? If she runs at 3 mph from home to the park, how fast should she run from the park to home if she wants to average 4 mph for the whole trip? If she runs at 3 mph from home to the park, how fast should she run from the park to home if she wants to average 6 mph for the whole trip?