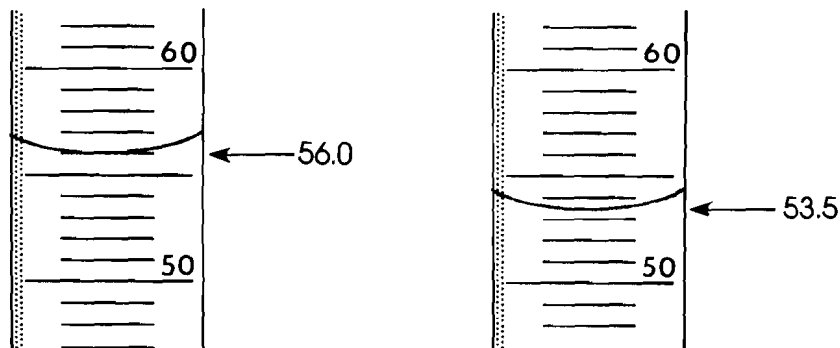
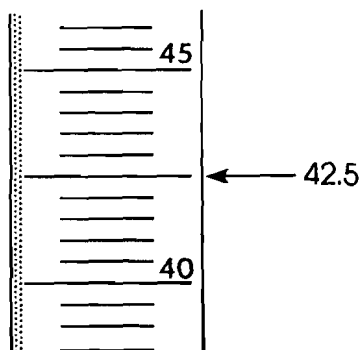


Groaning Over Graduates

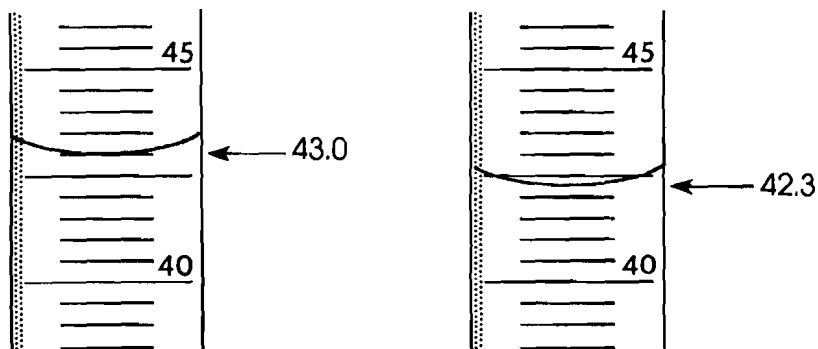
The graduated cylinder (or “graduate” when you’ve grown into a first-name relationship with it) can be a real challenge to a novice scale-reader. There seems to be an almost infinite variety of scales so that the careless person can easily make a mistake. It is *essential* to study each graduate to determine what the smallest gradations represent.



Shown above are basic one-milliliter gradation graduates. The first reads 56.0 ml and the second, 53.5 ml.



This next kind seems designed to confuse. The line midway between 40.0 ml and 45.0 ml is, of course, 42.5 ml. That seems unlikely for a major marking — but that’s what it is!



Notice the reading on the graduate on the right above. The estimation is halfway between 42.0 and 42.5 ml. That would seem to be 42.25 ml, but *we may not write two doubtful figures*, so we must write 42.3 ml.