13. $(2*4)*3 = (2\cdot 4\cdot 2+1)*3 = 17*3 = 2\cdot 17\cdot 3+1 = 103$

14. $m\angle ACD = m\angle B + m\angle BAC$, so $4x-22 = 3x+1$, thus x = 23. Now we know $m\angle BAC = 24°$ and $m\angle ACD = 70°$. Let $y = m\angle D = m\angle CAD$, so 2y + 70 = 180 and y = 55. Then $m\angle BAD = 24 + 55 = 79$

15. Let x = y = 1 and the expansion consists only of the coefficients in each term.
So the sum is $(2\cdot 1+1)^{10} = 3^{10}$, *or* 59049

16. From the parallel sides and alternate interior angles, and from the angle bisectors, we have $\angle LPG \cong \angle APG \cong \angle LGP$ and $\angle RAG \cong \angle PAG \cong \angle AGR$. So triangles PLG and ARG are isosceles. Thus $PL = LG$ and $GR = RA$. But $AR = PL$. So $\frac{PL}{LR} = \frac{1}{2}$

17. If x < 1/2, the function is $1-2x+2-x = -3x+3$. Between $\frac{1}{2}$ and 2, the function is $2x-1+2-x = x+1$. If x > 2, then the function is $2x-1+x-2 = 3x-3$. Thus the graph goes down to the left of $\frac{1}{2}$ and up to the right and the minimum value is for x = $\frac{1}{2}$, and that value is $\frac{3}{2}$ or 1.5

18. $\frac{52}{23} = 2+\frac{6}{23}$, so A = 2. Now $\frac{23}{6} = 3+\frac{5}{6}$, so B = 3. Then $\frac{6}{5} = 1+\frac{1}{5}$, so C = 1. Finally, $\frac{5}{1} = 5$, so D = 5.