



Math Olympiad and Problem Solving Programs
E210 - Introductory Math Competitions
Problem Set 15.2 - Funky Functions

Name:

Date:

1. $\boxed{30}$
2. $\boxed{\frac{11}{28}}$
3. $\boxed{5}$
4. $\boxed{32}$
5. First we do $2\&3 = (3 + 2) \times 3 = 5 \times 3 = 15$. Now we do $15\&5 = (5 + 15) \times 5 = 20 \times 5 = \boxed{100}$
6. $\boxed{2.5}$
7. $\boxed{45}$
8. First we do $\frac{5}{3}\&\frac{4}{5} = 3 \times \frac{5}{3} - 2 \times \frac{4}{5} = 5 - \frac{8}{5} = \frac{17}{5}$. Now we do $\frac{17}{5}\&\frac{3}{4} = 3 \times \frac{17}{5} - 2 \times \frac{3}{4} = \frac{51}{5} - \frac{3}{2} = \boxed{\frac{87}{10}}$
9. First compute $2 \odot a = 2 \times a - 2 - a + 1 = 2a - a - 2 + 1 = a - 1$. Now compute $(a - 1) \odot 2 = 2(a - 1) - (a - 1) - 2 + 1 = 2a - 2 - a + 1 - 2 + 1 = a - 2$. We know that $(2 \odot a) \odot 2 = 0$, so $a - 2 = 0$, so $\boxed{a = 2}$
10. $\boxed{34}$