



Math Olympiad and Problem Solving Programs
E230 Advanced Math Competitions
Problem Set 12.2 - MATHCOUNTS

Name:

Date:

1. Organize your counting:

From 888 - 899, there are 12 numbers in these sequence. There are 12 8's in the hundreds digits, 2 8's in the tens, and 2 8's in the units. So there are 16 8's in this group.

From 900 - 999, there are 100 numbers in this sequence. There aer 10 8's in the tens digits and 10 8's in the units, so there are 20 8's in this group.

From 1000 - 1999, there are 1000 numbers in this sequence. There are 100 8's in the hundreds digits, 100 tens digits, and 100 units digits. So there are 300 8's.

From 2000 - 2999, 300 8's. From 3000 - 3999, 300 8's. From 4000 - 4999, 300 8's. From 5000 - 5999, 300 8's. From 6000 - 6999, 300 8's. From 7000 - 7999, 300 8's.

From 8000 - 8888, there are 889 numbers in this sequence. There are 889 8's in the thousands, 89 in the hundreds, 89 in the tens, and 89 in the units.

So in total there are $\boxed{3292}$ 8's.

2. Don't be confused by the 3×8 dimensions. Those are the thickness of the beams. So he buys 18 boards each 10 feet long, so he buys 180 feet. Each foot costs 22 cents, so it costs him $180 \times .22 = \boxed{\$39.60}$

3. $\boxed{\text{Benjamin}}$

4. $\boxed{\frac{81}{16} = 5\frac{1}{16}}$

5. $\boxed{15}$

6. $\boxed{41}$

7. $\binom{10}{4} = \boxed{210}$

8. $\boxed{\frac{2}{15}}$

9. $\boxed{100}$

10. $\boxed{3}$