

Playsheet 8

Infinity is Weird!

MATH 130-02
Tuesday, February 24, 2009

Directions: Groups should consist of three or four people. Work together on each problem; do not delegate different problems to different people. Submit one **neatly written** write-up per group. Remember to use complete sentences as appropriate and explain your reasoning. That is, **show your work!**

1. Describe a one-to-one correspondence between the integers and the even integers.
2. Describe a one-to-one correspondence between the even integers and the odd integers.
3. Describe a one-to-one correspondence between the integers and the numbers $1, 2, 4, 8, 16, 32, 64, 128, 256, \dots$.
4. Consider the rational numbers between 0 and 1. Is there a one-to-one correspondence between these and the integers? Explain.
5. Describe a one-to-one correspondence between the positive real numbers and the negative real numbers.