

8. [6 pts - 3 each] The odds against <sup>good</sup> IUP beating <sup>bad: good</sup> SRU are 7:3.

(a) Rewrite this information, using the phrase "For every."

For every 7 times IUP doesn't beat SRU, there are 3 times they do.

(b) What is the probability that IUP doesn't beat SRU?

$$\frac{7}{10}$$

9. [12 pts - 4 each] Security codes at Fordsome Company consist of 2 letters followed by 3 digits and then another letter. (Do not simplify your answers to this question.)

(a) How many different codes are possible if letters may be repeated but digits may not?

$$26 \cdot 26 \cdot 10 \cdot 9 \cdot 8 \cdot 26$$

(b) How many codes allowing both repeated letters and digits do not use the letters x, y, and z?

$$23 \cdot 23 \cdot 10 \cdot 10 \cdot 10 \cdot 23$$

(c) How many codes allowing both repeated letters and digits have the first and last letter the same?

$$26 \cdot 26 \cdot 10 \cdot 10 \cdot 10 = 1$$

10. [8 pts - 4 each] How many different rearrangements are there of the letters below? (Do not simplify.)

(a) OSCAR JUMPED

$$11!$$

(b) ELMO GOES HOME

$$\frac{12!}{3!3!2!}$$