

# Concept: Binomial Probabilities

Name: \_\_\_\_\_

## COMPUTER COMPONENT

**Instructions:** In  follow the **Content Menu** path:

### Probability > Binomial Probabilities



Work through all Sub Lessons of the following Lessons **in order**:

- *Binomial Probabilities ... What Are They*
- *Flipping a Coin ... Once*
- *Flipping a Coin ... Twice*
- *Flipping a Coin ... Three Times*
- *Summary*

Additional Required Materials: Pennies and Nickels



As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

## SUMMARY

1. Demonstrate your knowledge of Binomial Probabilities by filling in the spaces below.

\_\_\_\_\_ probabilities occur in any situation where there are \_\_\_\_\_ possible outcomes. \_\_\_\_\_ diagrams are a helpful tool for outlining all the outcomes for a particular situation.

### 2. *Flipping a Coin*

What is the probability?

P(heads) = \_\_\_\_\_

P(tails) = \_\_\_\_\_

### 3. *Flipping a Coin Twice*

What is the probability?

P(2 heads) = \_\_\_\_\_

P(1 head) = \_\_\_\_\_

P(0 heads) = \_\_\_\_\_

#### 4. *Flipping a Coin Three Times*

Recreate the tree diagram that shows all of the outcomes from flipping a coin three times. *What is the probability of flipping 3 tails?*

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### OFF COMPUTER EXERCISES

1. Calculate the following probabilities from the experiment of flipping a coin three times:

(a)  $P(0 \text{ heads}) =$  \_\_\_\_\_

(b)  $P(1 \text{ head}) =$  \_\_\_\_\_

(c)  $P(2 \text{ heads}) =$  \_\_\_\_\_

(d)  $P(3 \text{ heads}) =$  \_\_\_\_\_

2. Now we'll look at all of the numerators in the probabilities that we have studied today.

numerators from 1 toss	1	1		
numerators from 2 tosses	1	2	1	
numerators from 3 tosses	1	3	3	1

*Can you predict the numerators that will occur in the row for 4 tosses?*

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3. For this experiment you will be tossing a penny and a nickel, once. *Use a tree diagram to list all possible outcomes for this experiment.*

(a) What is the probability that the penny lands heads?

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(b) What is the probability that both coins land heads?

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(c) What is the probability that the coins do not match when tossed?

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4. What is the probability of flipping a coin two times and getting no heads?

*Show your thinking below.*

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