Guessing Algorithms in LaTeX

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1 Binary Search Guessing Algorithm

Input: *target, low, high*
Output: Number of guesses

```
low = 1
high = 100
guesses = 0

while low <= high:
    mid = (low + high) / 2
    guesses = guesses + 1

    if mid == target:
        return guesses
    elif mid < target:
        low = mid + 1
    else:
        high = mid - 1
```

2 Exponential Search Guessing Algorithm

Input: *target*
Output: Number of guesses

```
guess = 1
guesses = 1

while guess < target:
    guess = guess * 2
    guesses = guesses + 1

low = guess / 2
high = min(guess, 100)
```

```
while low <= high:
    mid = (low + high) / 2
    guesses = guesses + 1

    if mid == target:
        return guesses
    elif mid < target:
        low = mid + 1
    else:
        high = mid - 1
```

3   Monte Carlo Guessing Algorithm

Input: *target, iterations*
Output: Number of guesses

```
guesses = 0

for i = 1 to iterations:
    guess = random number between 1 and 100
    guesses = guesses + 1

    if guess == target:
        return guesses
```