## **Exact matching**

At what offsets does *pattern P* occur within *text T*?

P: word

T: There would have been a time for such a word

Answer: offset 40

## **Exact matching**

At what offsets does *pattern P* occur within *text T*?

```
>>> t = 'There would have been a time for such a word'
>>> t.find('word')
40
```

## **Exact matching**

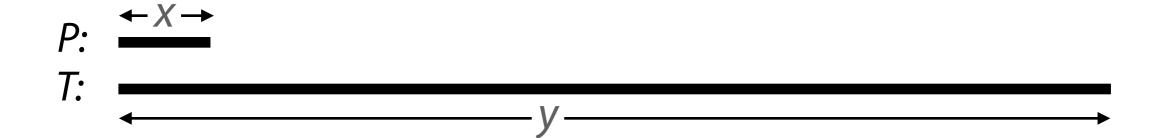
What's an algorithm for exact matching?

P: word

Let 
$$x = |P|, y = |T|$$

How many alignments are possible given x and y?

$$y - x + 1$$



Let 
$$x = |P|, y = |T|$$

What's the greatest # character comparisons possible?

$$x(y - x + 1)$$

P: aaaa

Let 
$$x = |P|, y = |T|$$

What's the least # character comparisons possible?

$$y - x + 1$$

P: abbb

How many character comparisons in this example?

P: word

How many character comparisons in this example?

P: word

40 mismatches + 6 matches = 46 character comparisons

Much closer to minimum (41) than maximum (164)