

Fundamentals | Loop Expressions

■ Loop Expressions

- ◆ Loops are expressions
 - Values can be returned from loops
 - Can only be used with **loop**
- ◆ **break** optionally returns a value

■ Syntax

```
let value = 5;  
let result: usize = 'ident: loop {  
    break value;  
    break 'ident value;  
};  
// result == 5
```

■ Example

```
let value: usize = loop {  
    if let Ok(input) = get_input() {  
        match input.parse::<usize>() {  
            Ok(value) => break value,  
            Err(e) => continue,  
        }  
    }  
};
```

■ Example – Loop Labels

```
let nums = vec![1, 2, 4, 5, 6, 7, 8];
let div_by_three: Option<usize> = 'outer: loop {
    for n in nums {
        if n % 3 == 0 {
            break 'outer Some(n);
        }
    }
    break None;
};
```

■ Recap

- ◆ **break** can return a value to a loop expression
 - Only valid on **loop** (not **while** or **for**)
- ◆ Can also **break** to a loop label with a value

```
let data = loop {  
  break 'label value;  
};
```