

# Learning Perl

Exercises 15

<https://github.com/onevc/LearningPerl>

王巍

# 問題 1

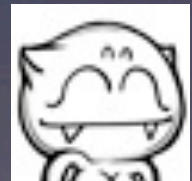
## ソースコード:

```
#!/usr/bin/perl
use strict;
use 5.010001;

my $number = int(1+rand 100);
print "Guess a number from 1 to 100: ";
my $input;
while ($input = <STDIN>) {
    chomp $input;
    given ($input) {
        when ($_ =~ /quit|exit|\A\s*\z/i) {print
"Bye."; last}
        when (! /\A[0-9]+\z/) {print "Enter a
number please.\n";}
        when ( $_ < $number) {print "Too low
\nTry again: ";}
        when ( $_ > $number) {print "Too high
\nTry again: ";}
        default {print "You are
right, the answer is $number\n"; last}
    }
}
```

```
Chapter15 — bash — 64x18
onev:Chapter15 onevc$ ./ex15-1.pl
Guess a number from 1 to 100: not_a_number
Enter a number please.
50
Too high
Try again: 25
Too low
Try again: 40
Too low
Try again: 45
Too low
Try again: 48
Too low
Try again: 49
You are right, the answer is 49
onev:Chapter15 onevc$
```

六つ、チャプター 10  
より、進歩がありま  
す。

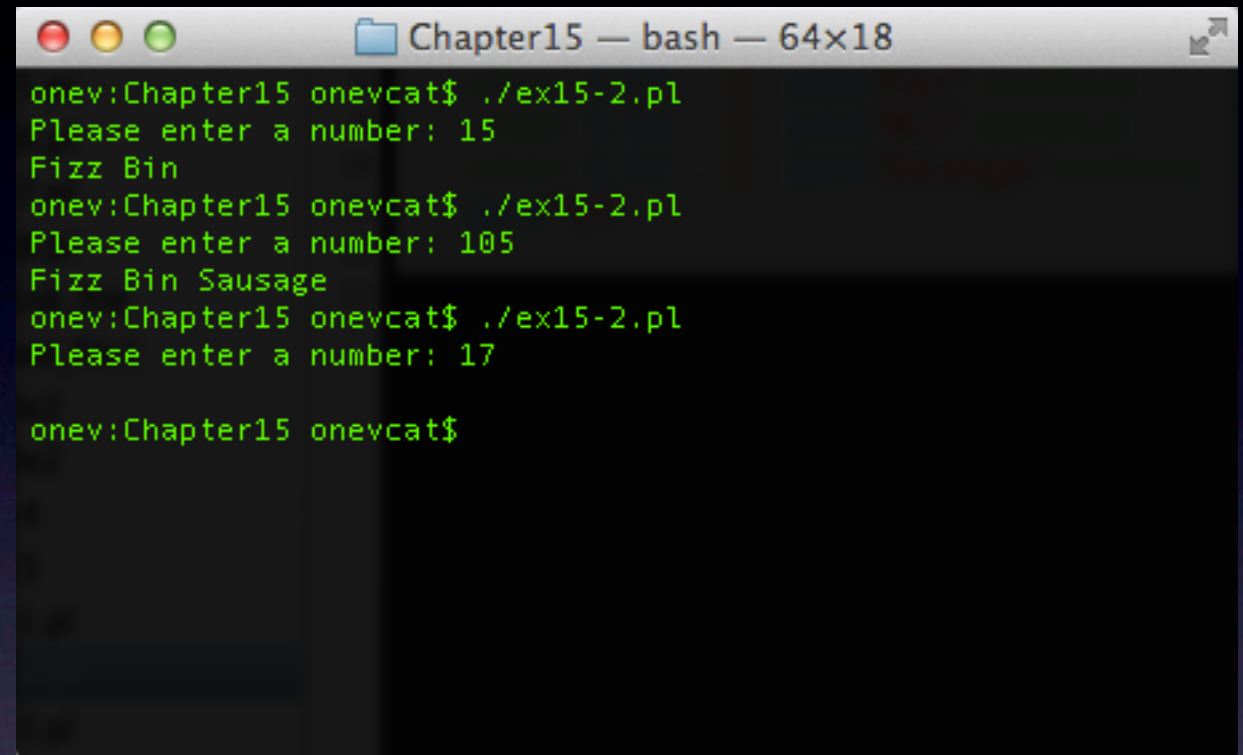


# 問題 2

ソースコード:

```
#!/usr/bin/perl
use strict;
use 5.010001;

print "Please enter a number: ";
chomp (my $number = <STDIN>);
given ($number) {
    when ($_%3 == 0) {print "Fizz ";
continue}
    when ($_%5 == 0) {print "Bin ";
continue}
    when ($_%7 == 0) {print
"Sausage";continue}
    print "\n";
}
```



```
Chapter15 — bash — 64x18
onev:Chapter15 onevcat$ ./ex15-2.pl
Please enter a number: 15
Fizz Bin
onev:Chapter15 onevcat$ ./ex15-2.pl
Please enter a number: 105
Fizz Bin Sausage
onev:Chapter15 onevcat$ ./ex15-2.pl
Please enter a number: 17

onev:Chapter15 onevcat$
```

3 と 5 と 7 は素数ですから，最小公倍数は  
 $3*5*7=105$



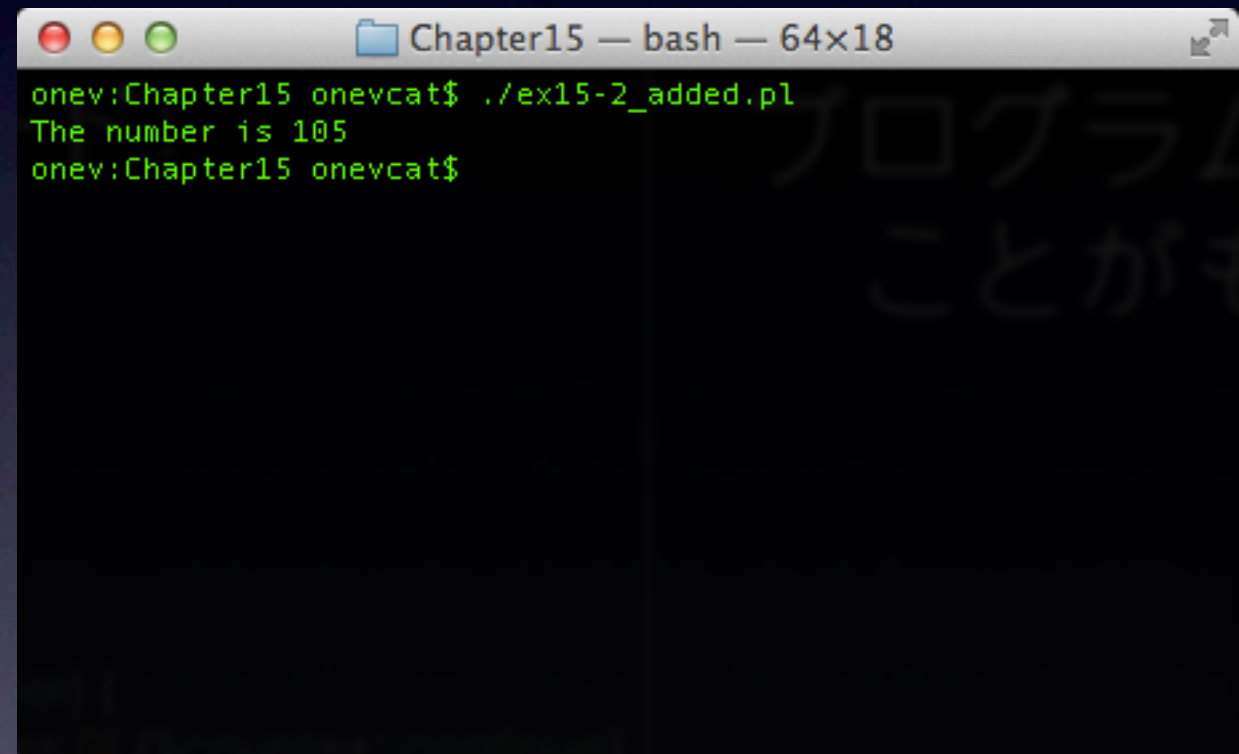
# 問題 2 の追加

## ソースコード:

```
#!/usr/bin/perl
use strict;
use 5.010001;

my $number;
my $found;
while (! $found) {
    my $count = 0;
    given (++$number) {
        when ($_%3 == 0) {$count++; continue}
        when ($_%5 == 0) {$count++; continue}
        when ($_%7 == 0) {$count++; continue}
        $found = ($count == 3) ? 1 : 0;
    }
}
print "The number is $number\n";
```

プログラムで解決することが可能です

A terminal window titled "Chapter15 — bash — 64x18" showing the execution of the Perl script. The prompt is "onev:Chapter15 onevc\$". The command entered is "./ex15-2\_added.pl". The output is "The number is 105". The prompt returns to "onev:Chapter15 onevc\$".

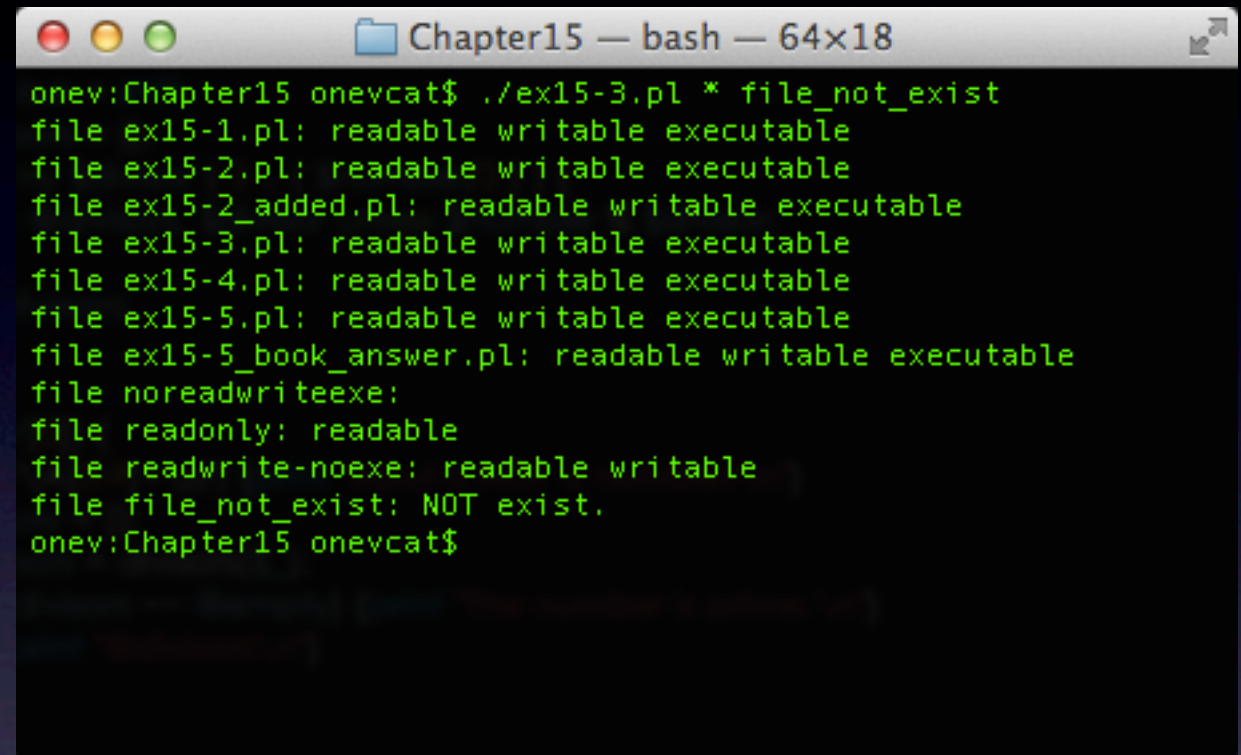
```
Chapter15 — bash — 64x18
onev:Chapter15 onevc$ ./ex15-2_added.pl
The number is 105
onev:Chapter15 onevc$
```

# 問題 3

## ソースコード:

```
#!/usr/bin/perl
use strict;
use 5.010001;

foreach (@ARGV) {
    print "file $_: ";
    when (! -e) {print "NOT exist.\n"}
    when (-r) {print "readable "; continue}
    when (-w) {print "writable "; continue}
    when (-x) {print "executable"; continue}
    print "\n"; #It seems this line behaved
                as a default block. Is that correct?
}
```



```
Chapter15 — bash — 64x18
onev:Chapter15 onevc$ ./ex15-3.pl * file_not_exist
file ex15-1.pl: readable writable executable
file ex15-2.pl: readable writable executable
file ex15-2_added.pl: readable writable executable
file ex15-3.pl: readable writable executable
file ex15-4.pl: readable writable executable
file ex15-5.pl: readable writable executable
file ex15-5_book_answer.pl: readable writable executable
file noreadwriteexe:
file readonly: readable
file readwrite-noexe: readable writable
file file_not_exist: NOT exist.
onev:Chapter15 onevc$
```

‘given’がありません。この  
状況で、‘default’がなくて  
もいいです。

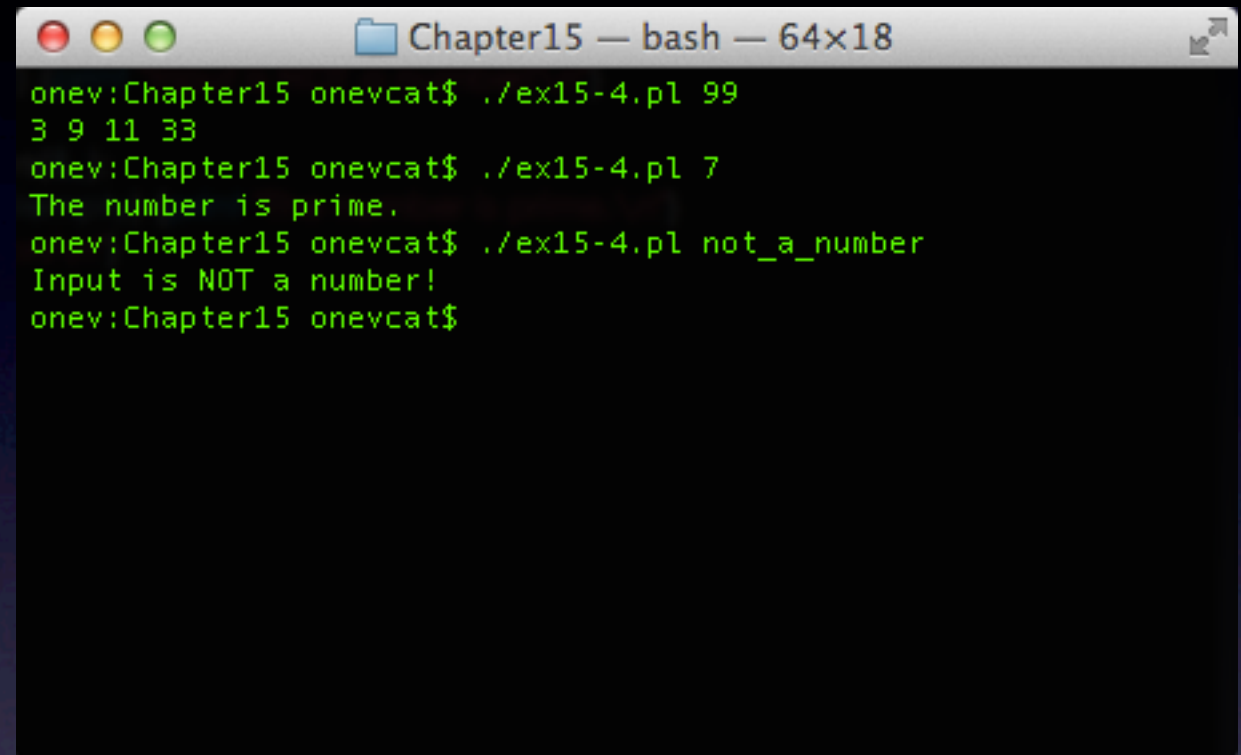
# 問題 4

## ソースコード:

```
#!/usr/bin/perl
use strict;
use 5.010001;

sub divisors {
    my $number = shift;
    my @divisors = ();
    foreach my $divisor ( 2 .. ( $number/2 ) ) {
        push @divisors, $divisor unless $number % $divisor;
    }
    return @divisors;
}

given ($ARGV[0]) {
    when (! /\A[0-9]+\z/) {print "Input is NOT a number!\n"}
    my @empty = ();
    my @divisors = divisors($_);
    when (@divisors ~~ @empty) {print "The number is prime.\n"}
    default {print "@divisors\n"}
}
```



```
Chapter15 — bash — 64x18
onev:Chapter15 onevc$ ./ex15-4.pl 99
3 9 11 33
onev:Chapter15 onevc$ ./ex15-4.pl 7
The number is prime.
onev:Chapter15 onevc$ ./ex15-4.pl not_a_number
Input is NOT a number!
onev:Chapter15 onevc$
```



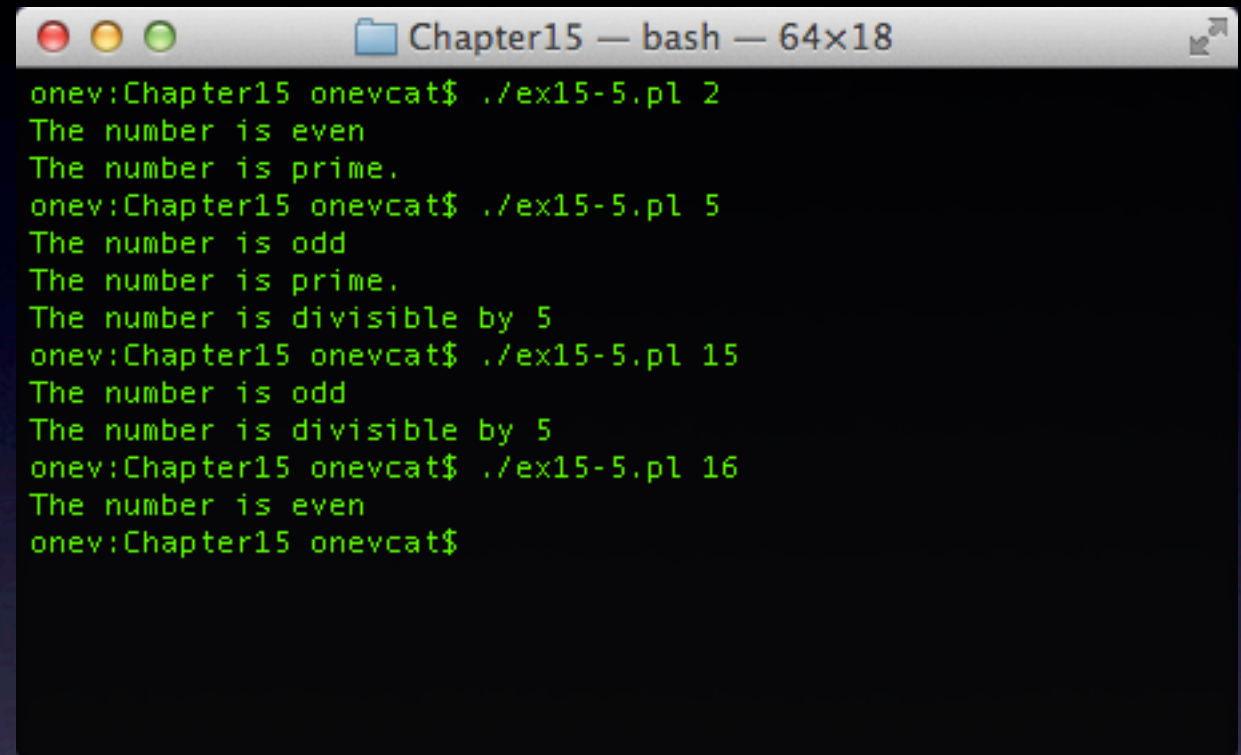
# 問題 5

## ソースコード:

```
#!/usr/bin/perl
use strict;
use 5.010001;

sub divisors {...}

my $favNumber = 5;
given ($ARGV[0]) {
    when (! /\A[0-9]+\z/) {print "Input is NOT a
number!\n"}
    when ($_%2 == 0) {print "The number is
even\n";continue}
    when ($_%2 == 1) {print "The number is
odd\n";continue}
    my @empty = ();
    my @divisors = divisors($_);
    when (@divisors == @empty) {print "The
number is prime.\n";continue}
    when ($_%$favNumber == 0) {print "The
number is divisible by $favNumber\n"}
}
```



Chapter15 — bash — 64x18

```
onev:Chapter15 onevcat$ ./ex15-5.pl 2
The number is even
The number is prime.
onev:Chapter15 onevcat$ ./ex15-5.pl 5
The number is odd
The number is prime.
The number is divisible by 5
onev:Chapter15 onevcat$ ./ex15-5.pl 15
The number is odd
The number is divisible by 5
onev:Chapter15 onevcat$ ./ex15-5.pl 16
The number is even
onev:Chapter15 onevcat$
```

# 問題 5 の疑問

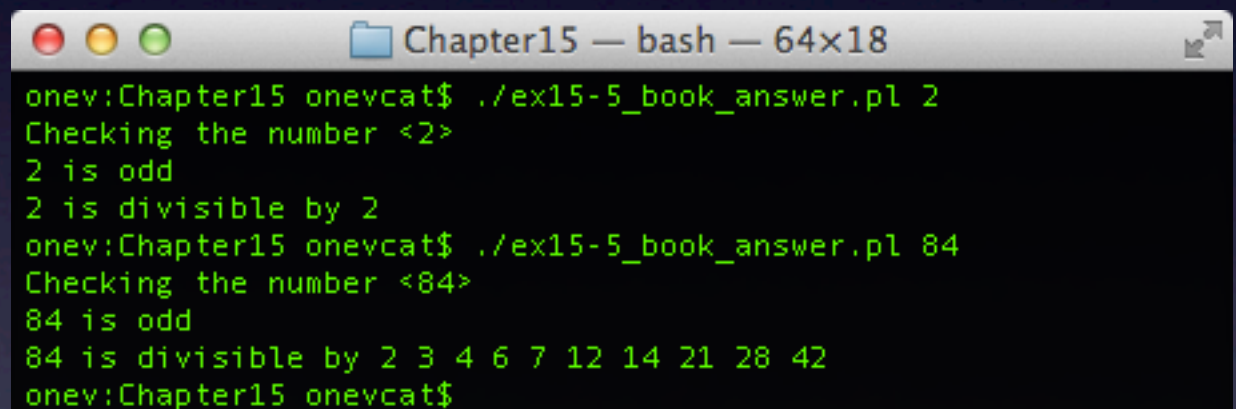
## ソースコード:

```
#!/usr/bin/perl
use strict;
use 5.010001;

sub divisors {...}

say "Checking the number <$ARGV[0]>";
my $favorite = 42;
given( $ARGV[0] ) {
    when( !/\A\d+\Z/ ) { say "Not a number!" }
    my @divisors = divisors( $ARGV[0] );
    when( @divisors ~~ 2 ) { # 2 is in @divisors
        say "$_ is even";
        continue;
    }
    when( !( @divisors ~~ 2 ) ) { # 2 isn't in @divisors
        say "$_ is odd";
        continue;
    }
    when( @divisors ~~ $favorite ) {
        say "$_ is divisible by my favorite number";
        continue;
    }
    when( $favorite ) { # $_ ~~ $favorite
        say "$_ is my favorite number"; continue;
    }
    my @empty;
    when( @divisors ~~ @empty ) { say "Number is prime" }
    default { say "$_ is divisible by @divisors" }
}
```

これは付録に答案です。でも、ちょっと違うと思います。perlのドキュメント中に、~~の左にはアレイ,右には数字の状況がありません(<http://perldoc.perl.org/perlop.html#Smartmatch-Operator>)。それから、このコードにsmartmatchは大分マッチすることができません。



```
Chapter15 — bash — 64x18
onev:Chapter15 onevc$ ./ex15-5_book_answer.pl 2
Checking the number <2>
2 is odd
2 is divisible by 2
onev:Chapter15 onevc$ ./ex15-5_book_answer.pl 84
Checking the number <84>
84 is odd
84 is divisible by 2 3 4 6 7 12 14 21 28 42
onev:Chapter15 onevc$
```

2と84は偶数です  
42は84の約数です  
結果は違います