## IN D EX

## Numbers

-0 command-line argument, 14, 100
-00 command-line argument, 14, 66-67
-0777 command-line argument, 60-61
e constant, 39
$\pi$ constant, 39

## Symbols

<> (diamond) operator, 13, 23, 57, 66
@\{[...]\} construct, 32-33
@ARGV array, 53, 103-104
@array1 = (@array1, @array2) construct, 33-35
@F array, 30-31, 36, 103
\}\{ (eskimo operator) construct, 23-24
$\$ 1, \$ 2, \$ 3, \ldots$ variables, 26, 101-102
\$ variable, 8-9, 101
\$, (field separator) variable, 32, 102
\$" variable, 68, 102-103
\$/ variable, 100
\$. variable, 18, 99-100
\$_ variable, 8-9, 67, 95-99
\$variable = () = <> construct, 23
\$variable || o construct, 38
\$variable + 0 construct, 25
$=\sim$ operator, 30
! operator, 73
!~ operator, 30
// operator, 34
. operator, 9
.. (range) operator, 49-50, 71, 78
\%ENV variable, 104
|| (logical OR) operator, 34
~~ (double bitwise negate) construct, 24, 25

## A

-a command-line argument, 30-31, 103
Abigail, 29
abs (absolute value) function, 36
"action if condition" statement, 18,20
"action unless condition" statement, 11 adding
blank lines, 7-12
fields (calculating sum of), 5, 30-32
spaces, between characters, 16 addresses
email, matching lookalikes with regular expressions, 86-87
IP
converting unsigned integers, to and from, 45-47
lookalikes, matching, 83-84 valid, matching, 85-86
Algorithm:: Permute module, 44
alphabet, generating, 49-50
arguments. See command-line arguments
@ARGV array, 53, 103-104
ARGV file handle, 99-100
arrays. See lists
ASCII
characters, printable, finding with regular expressions, 90
numeric values, converting into strings, 55
auto-splitting, 30-31, 103

## B

backup files, 2
base64 encoding, 60-61
bash, on Windows, 106
one-liners in, 107
bash.exe (win-bash), 106, 107
BEGIN block, 9
bignum module, 39
blank lines, adding or removing, 7-14
blocks
BEGIN, 9
END, 22-23

## c

calculating
absolute value, 36
array, number of elements in, 56-57
$e$ constant, 39
factorials, 41-42
greatest common divisor (gcd), 42
increasing, integers in a string, 89
least common multiple (lcm), 43
maximum element, 35
minimum element, 33-35
number
of elements, in an array, 56-57
of fields, 36-38
of lines, 22-25, 38
numeric positions, of words, 27
permutations, of lists, 44
$\pi$ constant, 39
powerset, 45
range, whether a number is in, 84-85
sum, of fields, 5, 30-32
case, converting, 62-63
characters
ASCII, printable, 90
case of, 62-63
numeric values of, 53-54
spacing of, 16
chr operator, 55
close function, 99-100
cmd.exe (Windows command prompt), 108
columns
order of, reversing, 67-68
sum of elements in, 5
command-line arguments
$-0,14,100$
-00, 14, 66-67
-0777, 60-61
-a, 30-31, 103
-e, 2, 8
-E, 10
-F, 31, 68
-i, 2, 60, 70
-i.bak, 2, 60, 70
-1, 4, 13
-M, 30-31
-Mmodule=arg, 31
-n, 3, 12, 96-97
-p, 2, 8, 97-98
command prompt, Windows, 108-111
Comprehensive Perl Archive Network
(CPAN), 3-4
conditional statements (if, unless), 11, 18, 20
constants
e, 39
$\pi, 39$
constructs
@\{[...]\} construct, 32-33
@array1 = (@array1, @array2)
construct, 33-35
\}\{ (eskimo operator), 23-24
\$variable = () = <> construct, 23
\$variable || 0 construct, 38
\$variable + 0 construct, 25
~~ (double bitwise negate), 24, 25
converting
case, 62-63
IP addresses, to and from unsigned integers, 45-47
newlines, for different operating systems, 65
numeric ASCII values, into strings, 55
CPAN (Comprehensive Perl Archive Network), 3-4
cpan (utility), 63, 79

## D

date, $4,40,41$
De Morgan's law, 73
decoding
from base64, 61
from HTML, 62
URLs, 61
defined function, 34
deleting
blank lines, 12-14
lines, by printing others, 69
spacing between words, 15
whitespace, 64-65
diamond operator (<>), 13, 23, 57, 66
documentation
perldoc, 5
Win32 Perl, 111
DOS/Windows newlines, converting, 65
double bitwise negate $\sim_{\sim}^{\sim}$ construct, 24, 25

## E

-e command-line argument, 2, 8
-E command-line argument, 10
$e$ constant, 39
$\backslash$ escape sequence, 62, 63
elements. See also fields
maximum, 35
minimum, 33-35
number of, in an array, 56-57
email addresses, matching lookalikes with regular expressions, 86-87
Email::Valid module, 87
empty lines, number of, 25
encoding
as base64, 60-61
as HTML, 62
URLs, 61
END block, 22-23
eof function, 71
epoch, time since, 39
escape sequences
\E, 62, 63
\L, 63
\u, 63
\U, 62
escaping
characters, to use one-liners
in PowerShell, 112-114
in Windows, 108-111
loops, with the eskimo operator \}\{ construct, 24
URLs, 61
eskimo operator \}\{ construct, 23-24
/etc/passwd, 5, 103
Euclid's algorithm, 42
exit function, 70-71

## F

@F array, 30-31, 36, 103
-F command-line argument, 31, 68
factorials, calculating, 41-42
fields. See also words
absolute value, replacing with, 36
auto-splitting, 30-31
number of, 36-38
separator (\$, variable), 32, 102
shuffling, 32-33
sum of, calculating, 5, 30-32
file paths, in Windows, 107, 111
filename expansion (globbing), 57
files
backup, 2
number of lines in, 22-25
numbering lines in, 17-22
printing, first and last lines in, 70-72
slurping, 100
spacing, 7-12
find-and-replace
HTML tags, 91-92
text, 2-3, 66
flip-flop operator, 71, 78
functions. See also operators
abs, 36
close, 99-100
defined, 34
eof, 71
exit, 70-71
gmtime, 40
grep, 24-25, 98-99
inet_aton, 46
inet_ntoa, 47
join, 33, 50
lc, 62-63
length, 13, 56
localtime, 40, 41
map, 36, 98
mktime, 41
pack, 47, 55
printf, 22
push, 31
rand, 43, 51-52
sprintf, 54
system, 104
time, 39
uc, 62
ucfirst, 63
unpack, 46,54

## G

gcd (greatest common divisor), 42
generating
alphabet, 49-50
numbers
constants, 39
even, 56
odd, 55-56
random, 43-44
passwords, 51-52
permutations, 44
powerset, 45
strings, from "a" to "zz", 50
globbing (filename expansion), 57
GMT (Greenwich Mean Time), 40
gmtime function, 40
golfing (Perl), 24
greatest common divisor (gcd), 42
Greenwich Mean Time (GMT), 40
grep function, 24-25, 98-99

## H

hex lookup table, 51
hex operator, 46, 51
HTML
encoding, 62
tags
extracting text between, 90-91
replacing, 91-92
HTML: :Entities module, 62
HTML: :TreeBuilder module, 90-92
HTTP headers, extracting User-Agent string from, 89
-i command-line argument, 2, 60, 70
-i.bak command-line argument, 2, 60, 70
if statement, 18,20
inet_aton function, 46
inet_ntoa function, 47
initial capitalization, 63
int operator, 25
integers
converting IP addresses, to and from, 45-47
increasing, 89
inverting case, of letters, 63

IP addresses
converting
to unsigned integers, 45-46
unsigned integers to, 47
matching
lookalikes, 83-84
valid, 85-86
iptables, 5

## J

join function, 33, 50

## L

-1 command-line argument, 4, 13
\L escape sequence, 63
lc function, 62-63
lcm (least common multiple), 43
least common multiple (lcm), 43
length
creating strings by, 52
none, 13
printing lines by, 76, 78-79
of strings, finding, 56
length function, 13,56
letters. See characters
lines
blank, adding or removing, 12-14
case, converting, 62-63
number of empty or non-empty, 24-25
in a file, total, 22-24
matching a pattern, 38
numbering, 17-22
with total number of words on, 37
words on, 26
order, reversing, 67
printing
by contents, 79-80
every second, 80-81
first and last, 70-72
by length, 76, 78-79
by matching regular
expressions, 25, 72-75, 78
by number, 76-77
repeated or unique, 81
replacing text on, 66
spacing, 7-14
List::PowerSet module, 45
lists
converting into strings, 55
creating from strings, 52-53
generating
alphabet, 49-50
even numbers, 56
odd numbers, 55-56
from regular expression matches, 92-93
number of elements in, 56-57
permutations of, 44
powerset, 45
slicing, 40
List::Util module, 30, 32
local time, 40
localtime function, 40, 41
logical OR operator, 34
lookup table, hex, 51
lowercase, converting to, 62-63

## M

-M command-line argument, 30-31
-Mmodule=arg, 31
Mac OS newlines, converting to, 65
map function, 36, 98
matching. See regular expressions
Math: :BigInt module, 41-42
maximum element, calculating, 35
MIME: :Base64 module, 60-61
minimum element, calculating, 33-35
mktime function, 41
modules
Algorithm: :Permute, 44
bignum, 39
Email::Valid, 87
HTML: :Entities, 62
HTML: :TreeBuilder, 90-92
List::PowerSet, 45
List::Util, 30, 32
Math: :BigInt, 41-42
MIME: :Base64, 60-61
POSIX, 41
Regexp: :Common, 87-88
Socket, 46
URI: :Escape, 61
months, days, and seconds ago, 41

## N

-n command-line argument, 3, 12, 96-97
newlines
adding, 7-12
converting for different operating systems, 65
non-empty lines numbering, 18-20
number of, 24-25
number
of elements, in an array, 56-57
of fields, 36-38
of lines, 22-25, 38
numbering
lines, 17-22, 37
words, 26
numbers
constants, 39
even, 56
odd, 55-56
random, 43-44
numeric
positions, of words, 27
values, of characters, 53-54

## 0

one-liners in Windows
in bash, 107
in PowerShell, 111-115
in Windows command prompt, 108-111
operating systems. See also Windows
newlines, converting for, 65
operators. See also functions
<> (diamond), 13, 23, 57, 66
\}\{ (eskimo), 23-24
$=\sim$ operator, 30
! operator, 73
!~ operator, 30
// operator, 34
. operator, 9
.. (range), 49-50, 71, 78
|| (logical OR), 34
chr, 55
flip-flop, 71, 78
hex, 46, 51
int, 25
ord, 53-54
q/.../, 109
qq/.../, 108
qr/.../, 85
operators, continued
qw/.../, 53
reverse, 67
say, 10
scalar, 23
shift, 72
split, 52
s/regex/replace/, 12
ternary, 87
tr, 59-60
x, 12, 52
y, 59-60
OR operator, logical, 34
ord operator, 53-54
order, reversing, 66-68

## P

-p command-line argument, 2, 8, 97-98
pack function, 47, 55
paragraphs
order of, reversing, 66-67
slurping, 14
passwords, generating random, 51-52
patterns. See regular expressions
Perl
golfing, 24
Strawberry, 105-106, 108
versions, 2
on Windows, 105-106. See also Windows
perldoc, 5
permutations, of lists, 44
$\pi$ constant, 39
POSIX module, 41
powerset, generating, 45
PowerShell, 111-115
prime, checking if a number is, 29-30
printf function, 22
printing
fields, number of, 36-38
lines
by contents, 79-80
every second, 80-81
first and last, 70-72
by length, 76, 78-79
by matching regular
expressions, 25, 72-75, 78
non-empty, 18-20
by number, 76-77
number of, 22-25, 38
repeated or unique, 81
push function, 31
q/.../ operator, 109
q9/.../ operator, 108
qr/.../ operator, 85
qw/.../ operator, 53

## R

rand function, 43, 51-52
random
numbers, generating, 43-44
passwords, generating, 51-52
range, calculating whether a number is in, $84-85$
range operator, 49-50, 71
Regexp::Common module, 87-88
regular expressions
ASCII characters, to match printable, 90
email addresses, to match lookalikes, 86-87
HTML tags
to extract text between, $90-91$
to replace, 91-92
IP addresses, and lookalikes, to match, 83-86
lines matching
to number and print, 21
number of, 38
to print, $25,72-75,78-80$
listing all matches, 92-93
range, to test whether a number is in, $84-85$
removing. See deleting
repeated
lines, 81
words, 88
replacing
HTML tags, 91-92
text, 2-3, 66
reverse operator, 67
ROT13, a string, 59-60

## S

say operator, 10
scalar operator, 23
shift operator, 72
shuffling fields (words), 32-33
slicing, lists, 40
slurping, 14, 100
Socket module, 46
spacing
of characters, 16
of lines, 7-14
of words, 15-16
splitting, auto-, 30-31, 103
split operator, 52
sprintf function, 54
s/regex/replace/ operator, 12
Strawberry Perl, 105-106, 108
strings
arrays, creating from, 52-53
base64 encoding, 60-61
case, converting, 62-63
characters, numeric values of, 53-54
email addresses, and lookalikes, 86-87
generating
from "a" to "zz", 50
alphabet, 49-50
from ASCII values, 55
from command-line arguments, 53
by length, 52 passwords, random, 51-52
HTML encoding, 62
integers, increasing, 89
IP addresses, and lookalikes, 83-86
length, finding, 56
numbers, checking if, 87-88
numeric values, of characters, 53-54
order, reversing, 66-68
ROT13, 59-60
shuffling fields (words), 32-33
spacing, 15-16
URL escaping, 61
with words appearing twice, 88
stripping whitespace, 64-65
substituting
HTML tags, 91-92
text, 2-3, 66
sum (of fields), calculating, 5, 30-32
system function, 104

## T

ternary operator, 87
text. See files; lines; words
There's More Than One Way To Do It (TIMTOWTDI), 14
time
date, 4, 40, 41
Greenwich Mean Time (GMT), 40
local, 40
UNIX, 39
time function, 39
@TimToady (Larry Wall), 14
TIMTOWTDI (There's More Than
One Way To Do It), 14
title case, converting to, 63
tr operator, 59-60

## U

Iu escape sequence, 63
IU escape sequence, 62
uc function, 62
ucfirst function, 63
unescaping, URLs, 61
unique lines, 81
UNIX
newlines, converting, 65
time, 39
unless statement, 11
unpack function, 46, 54
unsigned integers, converting IP addresses to and from, 45-47
uppercase, converting to, 62-63
URI: : Escape module, 61
URL-escaping, 61
usernames, listing from /etc/passwd, 5, 103

## V

valid IP addresses, matching, 85-86
values, of characters, 53-54
variables
@ARGV, 53, 103-104
@F, 30-31, 36, 103
$\$ 1, \$ 2, \$ 3, \ldots$ variables, 26, 101-102
\$ variable, 8-9, 101
\$, (field separator), 32, 102
\$" variable, 68, 102-103
\$/ variable, 100
\$. variable, 18, 99-100
\$_ variable, 8-9, 67, 95-99
\%ENV, 104
v -string (version string) literal, 64

## W

Wall, Larry, 14
whitespace, stripping, 64-65
win-bash (bash.exe), 106, 107
Windows
bash on, 106
bash.exe (win-bash), 106, 107
cmd.exe, 108
command prompt, 108-111
file paths
bash, 107
command prompt, 111
PowerShell, 112
newlines, 65
one-liners
in bash, 107
in PowerShell, 111-115
in Windows command prompt, 108-111
Perl on, 105-106
Strawberry Perl, 105-106
win-bash, 106, 107
words. See also fields
number of, on a line, 36-37
numbering, on a line, 26
numeric positions of, 27
passwords, generating random, 51-52
repeated, 88
shuffling, 32-33
spacing of, 15-16

## $X$

x operator, 12, 52

## Y

y operator, 59-60
yesterday's date, 41

