RWorksheet

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1.Set up a vector named age.

```
age <- c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29,35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25,
```

a.How many data points.

```
num_datapts <- length(age)
num_datapts
```

```
## [1] 34
```

2. Find the Reciprocal of the values of age.

```
recip_age <- 1 / age
recip_age
```

```
##  [1] 0.02941176 0.03571429 0.04545455 0.02777778 0.03703704 0.05555556
##  [7] 0.01923077 0.02564103 0.02380952 0.03448276 0.02857143 0.03225806
## [13] 0.03703704 0.04545455 0.02702703 0.02941176 0.05263158 0.05000000
## [19] 0.01754386 0.02040816 0.02000000 0.02702703 0.02173913 0.04000000
## [25] 0.05882353 0.02702703 0.02380952 0.01886792 0.02439024 0.01960784
## [31] 0.02857143 0.04166667 0.03030303 0.02439024
```

3. Assign also new_age <- c(age, 0, age).

```
new_age <- c(age, 0, age)
new_age
```

```
##  [1] 34 28 22 36 27 18 52 39 42 29 35 31 27 22 37 34 19 20 57 49 50 37 46 25 17
## [26] 37 42 53 41 51 35 24 33 41  0 34 28 22 36 27 18 52 39 42 29 35 31 27 22 37
## [51] 34 19 20 57 49 50 37 46 25 17 37 42 53 41 51 35 24 33 41
```

4. Sort the values for age.

```
sort(age)
```

```
##  [1] 17 18 19 20 22 22 24 25 27 27 28 29 31 33 34 34 35 35 36 37 37 37 39 41 41
## [26] 42 42 46 49 50 51 52 53 57
```

5. Find the minimum and maximum value for age.

```
min(age)
```

```
## [1] 17
```

```
max(age)
```

```
## [1] 57
```

6. Set up a vector named data.

```r
data <- c(2.4, 2.8, 2.1, 2.5, 2.4, 2.2, 2.5, 2.3, 2.5, 2.3, 2.4, 2.7)
num_datapts <- length(data)
num_datapts
```

```
## [1] 12
```

7.Generate a new vector for data where you double every value ofthe data.

```r
new_Data <- 2 * data
new_Data
```

```
##  [1] 4.8 5.6 4.2 5.0 4.8 4.4 5.0 4.6 5.0 4.6 4.8 5.4
```

8. Generate a sequence for the following scenario.

8.1 Integers from 1 to 100.

```r
Int <- seq(1:100)
Int
```

```
##   [1]   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18
##  [19]  19  20  21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36
##  [37]  37  38  39  40  41  42  43  44  45  46  47  48  49  50  51  52  53  54
##  [55]  55  56  57  58  59  60  61  62  63  64  65  66  67  68  69  70  71  72
##  [73]  73  74  75  76  77  78  79  80  81  82  83  84  85  86  87  88  89  90
##  [91]  91  92  93  94  95  96  97  98  99 100
```

8.2 Numbers from 20 to 60.

```r
Num <- seq(from=20,to=60)
Num
```

```
##  [1] 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44
## [26] 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
```

8.3 Mean of numbers from 20 to 60

```r
Num <- seq(from=20, to=60)
Num1 <- mean(Num)
Num1
```

```
## [1] 40
```

8.4 Sum of numbers from 51 to 91.

```r
Num <- sum(51:91)
Num
```

```
## [1] 2911
```

8.5 Integers from 1 to 1000.

```r
Int <- seq(1:1000)
Int
```

```
##    [1]    1    2    3    4    5    6    7    8    9   10   11   12   13   14
##   [15]   15   16   17   18   19   20   21   22   23   24   25   26   27   28
##   [29]   29   30   31   32   33   34   35   36   37   38   39   40   41   42
##   [43]   43   44   45   46   47   48   49   50   51   52   53   54   55   56
##   [57]   57   58   59   60   61   62   63   64   65   66   67   68   69   70
##   [71]   71   72   73   74   75   76   77   78   79   80   81   82   83   84
##   [85]   85   86   87   88   89   90   91   92   93   94   95   96   97   98
##   [99]   99  100  101  102  103  104  105  106  107  108  109  110  111  112
```

```
##  [113] 113 114 115 116 117 118 119 120 121 122 123 124 125 126
##  [127] 127 128 129 130 131 132 133 134 135 136 137 138 139 140
##  [141] 141 142 143 144 145 146 147 148 149 150 151 152 153 154
##  [155] 155 156 157 158 159 160 161 162 163 164 165 166 167 168
##  [169] 169 170 171 172 173 174 175 176 177 178 179 180 181 182
##  [183] 183 184 185 186 187 188 189 190 191 192 193 194 195 196
##  [197] 197 198 199 200 201 202 203 204 205 206 207 208 209 210
##  [211] 211 212 213 214 215 216 217 218 219 220 221 222 223 224
##  [225] 225 226 227 228 229 230 231 232 233 234 235 236 237 238
##  [239] 239 240 241 242 243 244 245 246 247 248 249 250 251 252
##  [253] 253 254 255 256 257 258 259 260 261 262 263 264 265 266
##  [267] 267 268 269 270 271 272 273 274 275 276 277 278 279 280
##  [281] 281 282 283 284 285 286 287 288 289 290 291 292 293 294
##  [295] 295 296 297 298 299 300 301 302 303 304 305 306 307 308
##  [309] 309 310 311 312 313 314 315 316 317 318 319 320 321 322
##  [323] 323 324 325 326 327 328 329 330 331 332 333 334 335 336
##  [337] 337 338 339 340 341 342 343 344 345 346 347 348 349 350
##  [351] 351 352 353 354 355 356 357 358 359 360 361 362 363 364
##  [365] 365 366 367 368 369 370 371 372 373 374 375 376 377 378
##  [379] 379 380 381 382 383 384 385 386 387 388 389 390 391 392
##  [393] 393 394 395 396 397 398 399 400 401 402 403 404 405 406
##  [407] 407 408 409 410 411 412 413 414 415 416 417 418 419 420
##  [421] 421 422 423 424 425 426 427 428 429 430 431 432 433 434
##  [435] 435 436 437 438 439 440 441 442 443 444 445 446 447 448
##  [449] 449 450 451 452 453 454 455 456 457 458 459 460 461 462
##  [463] 463 464 465 466 467 468 469 470 471 472 473 474 475 476
##  [477] 477 478 479 480 481 482 483 484 485 486 487 488 489 490
##  [491] 491 492 493 494 495 496 497 498 499 500 501 502 503 504
##  [505] 505 506 507 508 509 510 511 512 513 514 515 516 517 518
##  [519] 519 520 521 522 523 524 525 526 527 528 529 530 531 532
##  [533] 533 534 535 536 537 538 539 540 541 542 543 544 545 546
##  [547] 547 548 549 550 551 552 553 554 555 556 557 558 559 560
##  [561] 561 562 563 564 565 566 567 568 569 570 571 572 573 574
##  [575] 575 576 577 578 579 580 581 582 583 584 585 586 587 588
##  [589] 589 590 591 592 593 594 595 596 597 598 599 600 601 602
##  [603] 603 604 605 606 607 608 609 610 611 612 613 614 615 616
##  [617] 617 618 619 620 621 622 623 624 625 626 627 628 629 630
##  [631] 631 632 633 634 635 636 637 638 639 640 641 642 643 644
##  [645] 645 646 647 648 649 650 651 652 653 654 655 656 657 658
##  [659] 659 660 661 662 663 664 665 666 667 668 669 670 671 672
##  [673] 673 674 675 676 677 678 679 680 681 682 683 684 685 686
##  [687] 687 688 689 690 691 692 693 694 695 696 697 698 699 700
##  [701] 701 702 703 704 705 706 707 708 709 710 711 712 713 714
##  [715] 715 716 717 718 719 720 721 722 723 724 725 726 727 728
##  [729] 729 730 731 732 733 734 735 736 737 738 739 740 741 742
##  [743] 743 744 745 746 747 748 749 750 751 752 753 754 755 756
##  [757] 757 758 759 760 761 762 763 764 765 766 767 768 769 770
##  [771] 771 772 773 774 775 776 777 778 779 780 781 782 783 784
##  [785] 785 786 787 788 789 790 791 792 793 794 795 796 797 798
##  [799] 799 800 801 802 803 804 805 806 807 808 809 810 811 812
##  [813] 813 814 815 816 817 818 819 820 821 822 823 824 825 826
##  [827] 827 828 829 830 831 832 833 834 835 836 837 838 839 840
##  [841] 841 842 843 844 845 846 847 848 849 850 851 852 853 854
##  [855] 855 856 857 858 859 860 861 862 863 864 865 866 867 868
```

```
##  [869]  869  870  871  872  873  874  875  876  877  878  879  880  881  882
##  [883]  883  884  885  886  887  888  889  890  891  892  893  894  895  896
##  [897]  897  898  899  900  901  902  903  904  905  906  907  908  909  910
##  [911]  911  912  913  914  915  916  917  918  919  920  921  922  923  924
##  [925]  925  926  927  928  929  930  931  932  933  934  935  936  937  938
##  [939]  939  940  941  942  943  944  945  946  947  948  949  950  951  952
##  [953]  953  954  955  956  957  958  959  960  961  962  963  964  965  966
##  [967]  967  968  969  970  971  972  973  974  975  976  977  978  979  980
##  [981]  981  982  983  984  985  986  987  988  989  990  991  992  993  994
##  [995]  995  996  997  998  999 1000
```

a. How many data points from 8.1 to 8.4?

```
datapts <- length(8.1:8.4)
datapts
```

```
## [1] 1
```

c. For 8.5, find only the maximum datapoints until 10.

```
max_dtpts <- Int[1:10]
max_dtpts
```

```
##  [1]  1  2  3  4  5  6  7  8  9 10
```

```
length(max_dtpts)
```

```
## [1] 10
```

9. Print a vector with the integers between 1 and 100 that are not and 7 using filter option.

```
Filter(function(i) { all(i %% c(3,5,7) != 0) }, seq(100))
```

```
##  [1]  1  2  4  8 11 13 16 17 19 22 23 26 29 31 32 34 37 38 41 43 44 46 47 52 53
## [26] 58 59 61 62 64 67 68 71 73 74 76 79 82 83 86 88 89 92 94 97
```

10. Generate a sequence backwards of the integers from 1 to 100.

```
rev(seq(1:100))
```

```
##   [1] 100  99  98  97  96  95  94  93  92  91  90  89  88  87  86  85  84  83
##  [19]  82  81  80  79  78  77  76  75  74  73  72  71  70  69  68  67  66  65
##  [37]  64  63  62  61  60  59  58  57  56  55  54  53  52  51  50  49  48  47
##  [55]  46  45  44  43  42  41  40  39  38  37  36  35  34  33  32  31  30  29
##  [73]  28  27  26  25  24  23  22  21  20  19  18  17  16  15  14  13  12  11
##  [91]  10   9   8   7   6   5   4   3   2   1
```

11. List all the natural numbers below 25 that are multiples of 3or 5.

```
x <- Filter(function(i) {any(i %% c(3,5) ==0)}, seq(24))
SumofX <- sum(x)
SumofX
```

```
## [1] 143
```

a. How many data points from 10 to 11?

```
dtapt <- length(10:11)
dtapt
```

```
## [1] 2
```

12.

```
#x <- {0 + x + 5 + }
#this code can't run because of a syntax error as it seems to be incomplete
```

13.

```
score <- c(72, 86, 92, 63, 88, 89, 91, 92, 75, 75,77.)
s2 <- score[2]
s2
```

```
## [1] 86
```

```
s3 <- score[3]
s3
```

```
## [1] 92
```

14. *Create a vector a = c(1,2,NA,4,NA,6,7).

```
a <- c(1, 2 ,NA, 4, NA, 6, 7)
print(a,na.print="-999")
```

```
## [1]    1    2 -999    4 -999    6    7
```

```
print(a,na.print="-999")
```

```
## [1]    1    2 -999    4 -999    6    7
```

15

```
name = readline(prompt="Input your name: ")
```

```
## Input your name:
```

```
age = readline(prompt="Input your age: ")
```

```
## Input your age:
```

```
print(paste("My name is",name, "and I am",age ,"years old."))
```

```
## [1] "My name is  and I am  years old."
```

```
(R.version.string)
```

```
## [1] "R version 4.4.1 (2024-06-14)"
```