

1

1.1

The awk command to print the names of players that can throw only with their left arm is:

```
cat orioles.txt | awk 'BEGIN{FS="|"} $5 ~ /L.*t/ {print $2}'
```

1.2

The awk command to print the whole record for players that are able to throw and bat with different arms is:

```
cat orioles.txt | awk 'BEGIN{FS="|"} {if($5 != $6) print}'
```

1.3

The awk command to print the table without header lines is:

```
cat orioles.txt | awk 'BEGIN{FS = "|"} \!/[#]/ {print}'
```

1.4

The awk command to print the names of the players that were born between 1930 and 1940 is:

```
cat orioles.txt | awk 'BEGIN{FS = "|"} $7~/((193)[0-9]|(194)[0]/ {print $2}'
```

1.5

The awk command to print the whole table using new field and record separators is:

```
cat orioles.txt | awk 'BEGIN{FS="|";OFS = ";"; ORS="\n\n"} {print $1,$2,$3,$4,$5,$6,$7}'
```

1.6

The awk command to print the name of the team's catchers without any headers is:

```
cat orioles.txt | awk 'BEGIN{FS = "|"} /Catchers/ {flag=1;next} /Infielders/ {flag=0} flag{print $2}'
```

2

2.1

The awk command to output the largest of the two for each line of the file is:

```
cat numbers.txt | awk 'BEGIN{FS=","}{if($1 > $2) print $1; else print $2}'
```

2.2

The awk command to compute the average per column is:

```
Column 1:
cat numbers.txt | awk 'BEGIN{FS=","} {sum+=$1} END {avg = sum/NR} END {print avg}'
Column 2:
cat numbers.txt | awk 'BEGIN{FS=","} {sum+=$2} END {avg = sum/NR} END {print avg}'
```

3

The following awk script parses the output of the ps au command and gives the total CPU usage of the user root.

```
BEGIN{FS = " "} $1~/root/ {sum+=$3} END{print "Total CPU usage: "sum "%."}
```

4

4.1

The awk function to solve the quadratic formula is:

```
function quadraticsolver(a, b, c, sign)
{
    return (-b + sign*sqrt(b^2 - (4*a*c)))/(2*a)
}
```

4.2

The following awk script outputs the roots of each line.

```
{root1 = quadraticsolver($1, $2, $3, 1)}
{root2 = quadraticsolver($1, $2, $3, -1)}

BEGIN{FS = ":"}{print $1 ":" $2 ":" $3 ":" root1 ":" root2 ":"}

function quadraticsolver(a, b, c, sign)
{
    return (-b + sign*sqrt(b^2 - (4*a*c)))/(2*a)
}
```