```
> restart : with(geometry) : with(plots) :
```

Question 94

(a)

$$> position := (v, b, t) \rightarrow \left[v\cdot\cos\left(\frac{b\cdot 3.14}{180}\right)\cdot t,\ \tan\left(\frac{b\cdot 3.14}{180}\right)\cdot v\cdot\cos\left(\frac{b\cdot 3.14}{180}\right)\cdot t - \frac{9.8\left(v\cdot\cos\left(\frac{b\cdot 3.14}{180}\right)\cdot t\right)^2}{2\,v^2\cos^2\left(\frac{b\cdot 3.14}{180}\right)}\right] :$$

```
> a := position(520, 14, 20);
  b := position(630, 16, 20);
  c := position(750, 18, 20);
  d := position(870, 20, 20);
  e := position(1000, 22, 20);
```

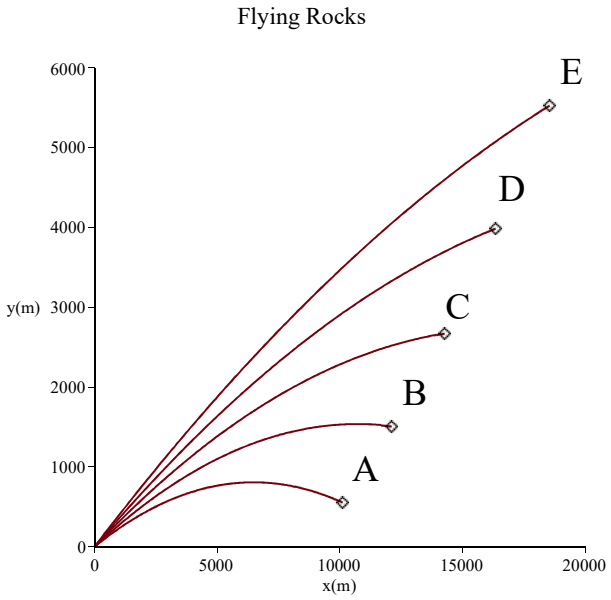
$$a := [10091.38714,\ 554.737682]$$
$$b := [12112.38892,\ 1511.315976]$$
$$c := [14266.58580,\ 2672.982801]$$
$$d := [16351.70447,\ 3988.256965]$$
$$e := [18545.13514,\ 5528.522058] \qquad \textbf{(1)}$$

(b)

```
> points := {a, b, c, d, e} :
> pointdisplay := plots:-pointplot(points, symbol = diamond, symbolsize = 15, colour = black) :
```

$$> positionplot := (v, b, t) \rightarrow plot\left(\left[v\cdot\cos\left(\frac{b\cdot 3.14}{180}\right)\cdot t,\ \tan\left(\frac{b\cdot 3.14}{180}\right)\cdot v\cdot\cos\left(\frac{b\cdot 3.14}{180}\right)\cdot t - \frac{9.8\left(v\cdot\cos\left(\frac{b\cdot 3.14}{180}\right)\cdot t\right)^2}{2\,v^2\cos^2\left(\frac{b\cdot 3.14}{180}\right)},\ t = 0..20\right]\right) :$$

```
> aplot := positionplot(520, 14, t) :
  bplot := positionplot(630, 16, t) :
  cplot := positionplot(750, 18, t) :
  dplot := positionplot(870, 20, t) :
  eplot := positionplot(1000, 22, t) :
> display({pointdisplay, aplot, bplot, cplot, dplot, eplot});
```


Flying Rocks
6000
5000
4000
3000
2000
1000
0
y(m)
0
5000
10000
15000
20000
x(m)
E
D
C
B
A