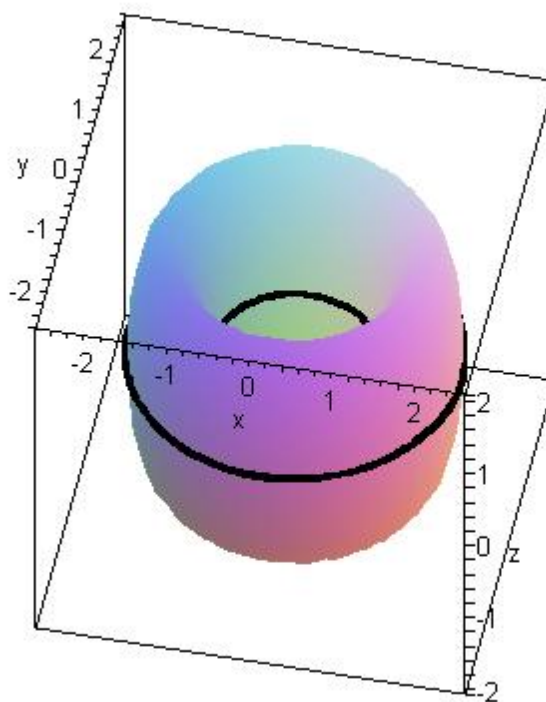


#Exercice 1

1)

```
> restart;
> with(plots):
> p1:=z^2+(x^2+y^2)^2-5*(x^2+y^2)+4;
> D1:=implicitplot3d(p1,x=-2.5..2.5,y=-2.5..2.5,z=-
2..2,grid=[30,30,30],axes=boxed,style=PATCHNOGRID):
>
D2:=spacecurve([cos(t),sin(t),0],[2*cos(t),2*sin(t),0]],t=0..2*Pi,color=black,thic
kness=3):
> display([D1,D2]);
```



#Exercice 3

```
> a:=1234; b:=56;
```

```
a:=1234
```

```
b:=56
```

```
> igcd(a,b); igcdex(a,b,'u','v');
```

```
2
```

```
2
```

```
> u;v;
```

```
2134
```

```
2769
```

```
> 'a'=a,'b'=b,'u'=u,'v'=v,'au+bv'=a*u+b*v;
```

'a' = 1234, 'b' = 56, 1 = 2134, -22 = 2769, 'au + bv' = 2788420

```
> igcd( ); ilcm( );
```

0

1

```
> #exo04
```

```
> restart;
```

```
> with(numtheory):
```

```
> ? divisors
```

```
> n := 9659263278;
```

n := 9659263278

```
> L:=convert(divisors(n),list);
```

L := [1, 2, 3, 6, 7, 14, 21, 31, 42, 49, 62, 83, 93, 98, 113, 147, 166, 186, 217, 226, 249, 339, 434, 498, 581, 651, 678, 791, 1162, 1302, 1519, 1582, 1743, 2373, 2573, 3038, 3486, 3503, 4067, 4557, 4746, 5146, 5537, 7006, 7719, 8134, 9114, 9379, 10509, 11074, 12201, 12769, 15438, 16611, 18011, 18758, 21018, 24402, 24521, 25538, 28137, 33222, 36022, 38307, 49042, 54033, 56274, 65653, 73563, 76614, 89383, 108066, 126077, 131306, 147126, 171647, 178766, 196959, 252154, 268149, 290749, 343294, 378231, 393918, 395839, 459571, 514941, 536298, 581498, 625681, 756462, 791678, 872247, 919142, 1029882, 1059827, 1187517, 1251362, 1378713, 1744494, 1877043, 2035243, 2119654, 2375034, 2757426, 2770873, 3179481, 3754086, 4070486, 5541746, 6105729, 6358962, 7418789, 8312619, 12211458, 14246701, 14837578, 16625238, 19396111, 22256367, 9659263278, 1379894754, 1609877213, 3219754426, 4829631639, 28493402, 32854637, 38792222, 42740103, 44512734, 51931523, 58188333, 65709274, 85480206, 98563911, 103863046, 116376666, 155794569, 197127822, 229982459, 311589138, 459964918, 689947377]

```
> nops(L);
```

144

```
> L[28];
```

678

```
> divisors(n) intersect divisors(12667875);
```

{1, 3, 83, 249}

```
> #exo05
```

```
> restart; with(numtheory):
```

```
> k:=1:
```

```
while tau(k)<>15 do k:=k+1 od: print(k);
```

144

```
> divisors(144);
```

{1, 2, 3, 4, 6, 8, 9, 12, 16, 18, 24, 36, 48, 72, 144}

```
> nops(divisors(144));
```

