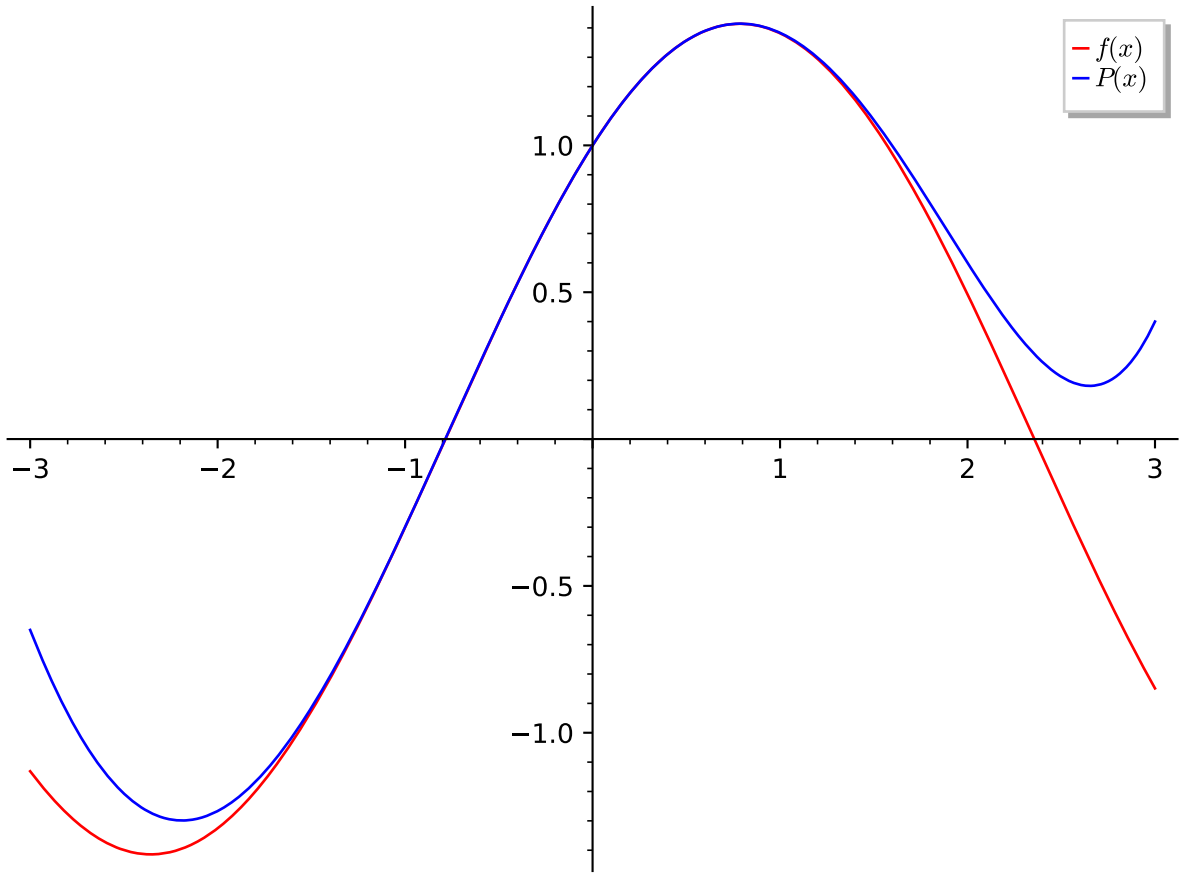
1. Ej 1

```
f(x) = cos(x) + sin(x)
```

i.

```
P(x) = taylor(f, x, 0, 5)
```

$$x \mapsto \frac{1}{120}\,x^5 + \frac{1}{24}\,x^4 - \frac{1}{6}\,x^3 - \frac{1}{2}\,x^2 + x + 1$$



ii.

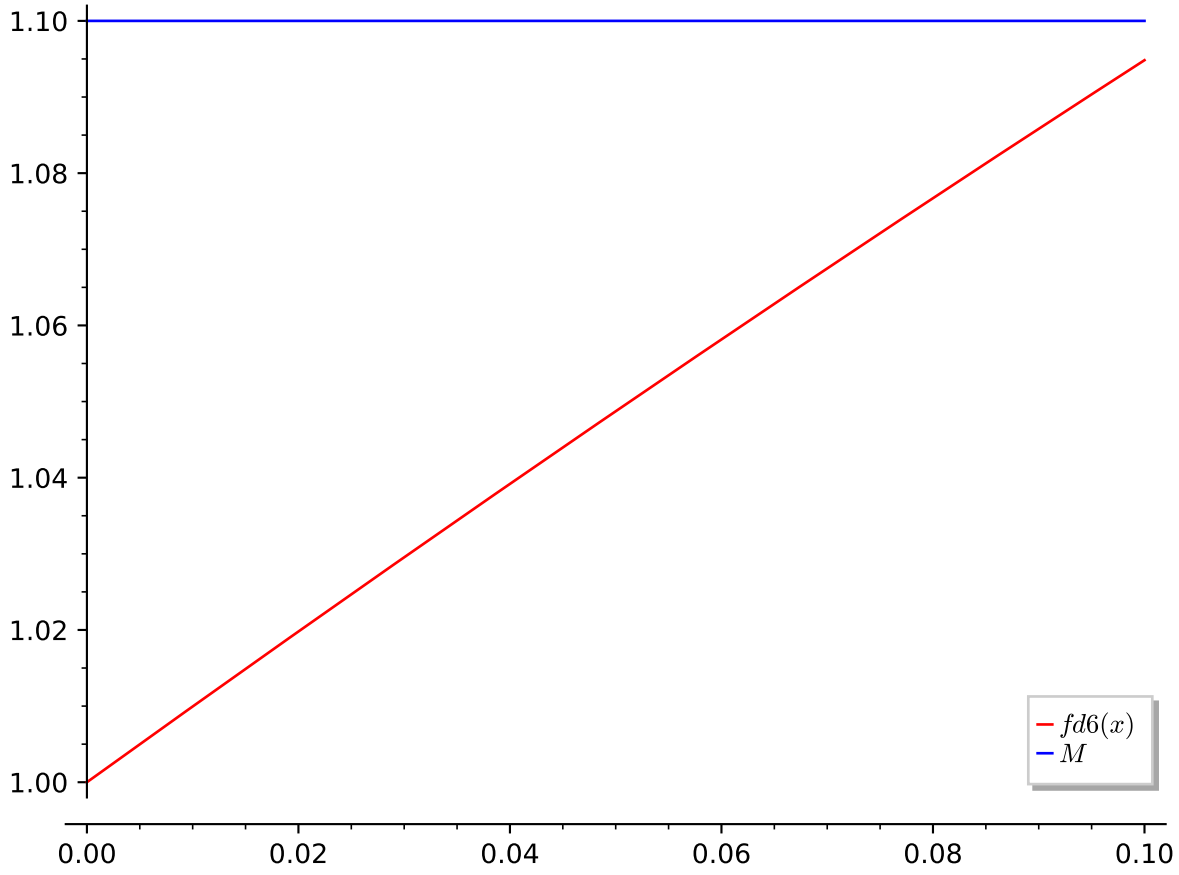
iii.

```
A = P(0.1)
```

$$A = 1.09483758333333$$

iv.

2



$$M = 1.1$$

$$cota = \frac{M \cdot |x-a|^{n+1}}{(n+1)!}$$
$$cota = \frac{1.45 \cdot |0.1-0|^{6}}{6!}$$
$$cota = 1.52777777777778 \times 10^{-9}$$

2. Ej 4

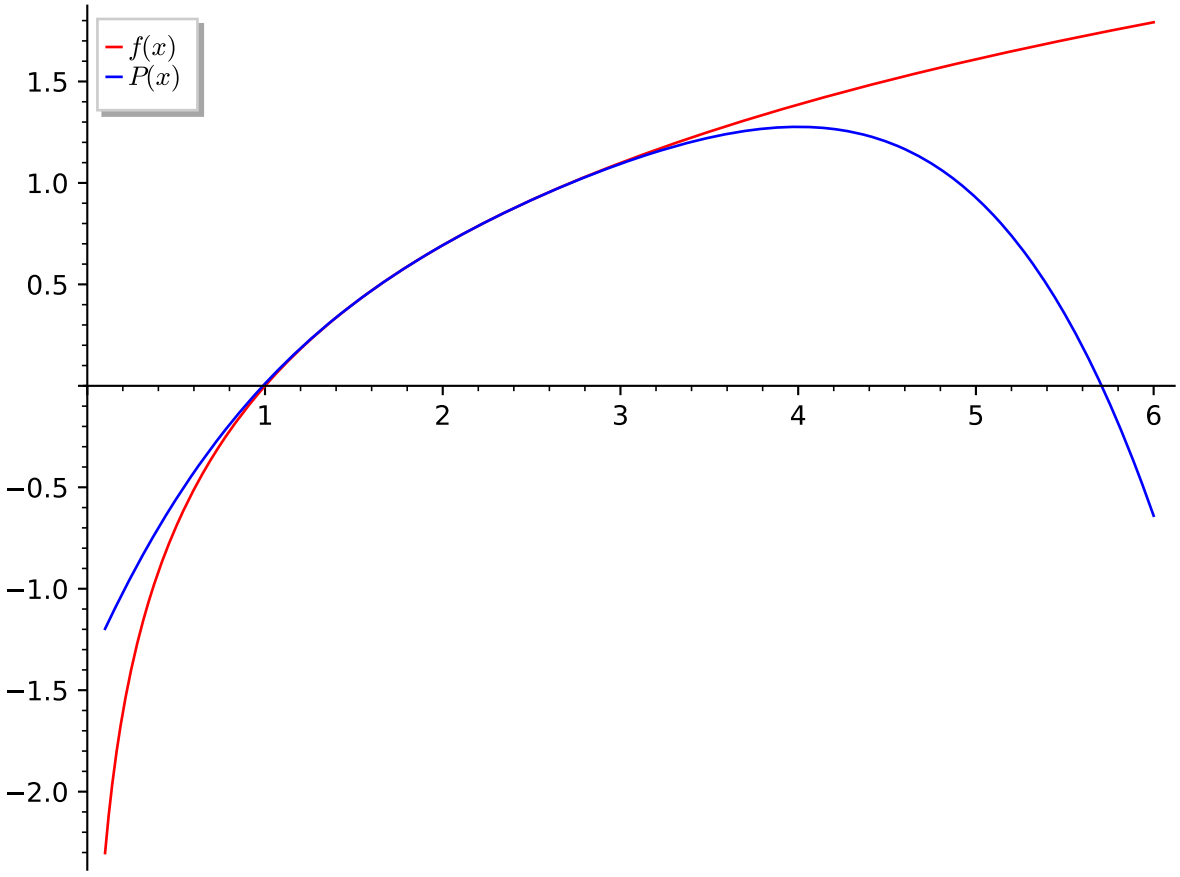
```
f(x) = log(x)
```

a.

```
P(x) = taylor(f, x, 2, 4);
```

$$x \mapsto -\frac{1}{64}(x-2)^4 + \frac{1}{24}(x-2)^3 - \frac{1}{8}(x-2)^2 + \frac{1}{2}x + \log(2) - 1$$

b.

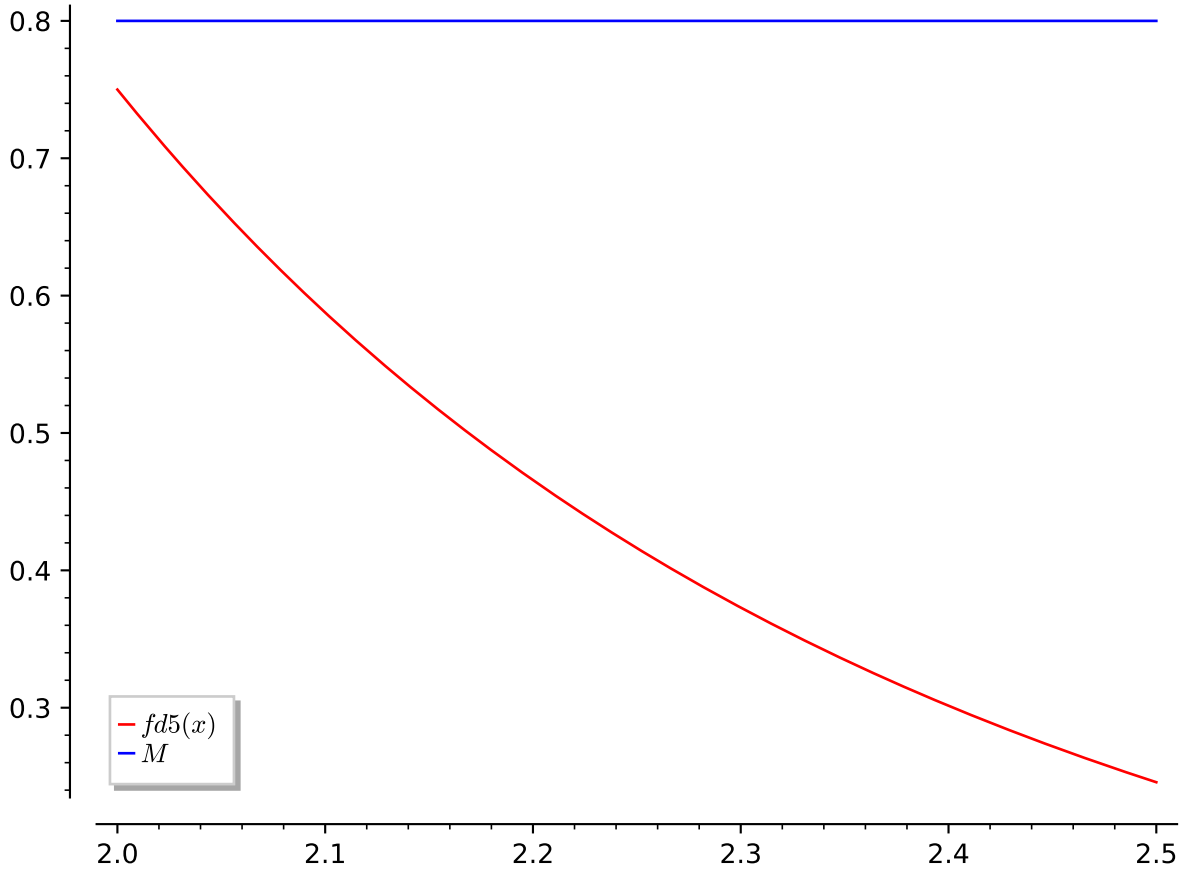


c.

```
A = P(2.5)
```

$$A = \log(2) + 0.222981770833333$$

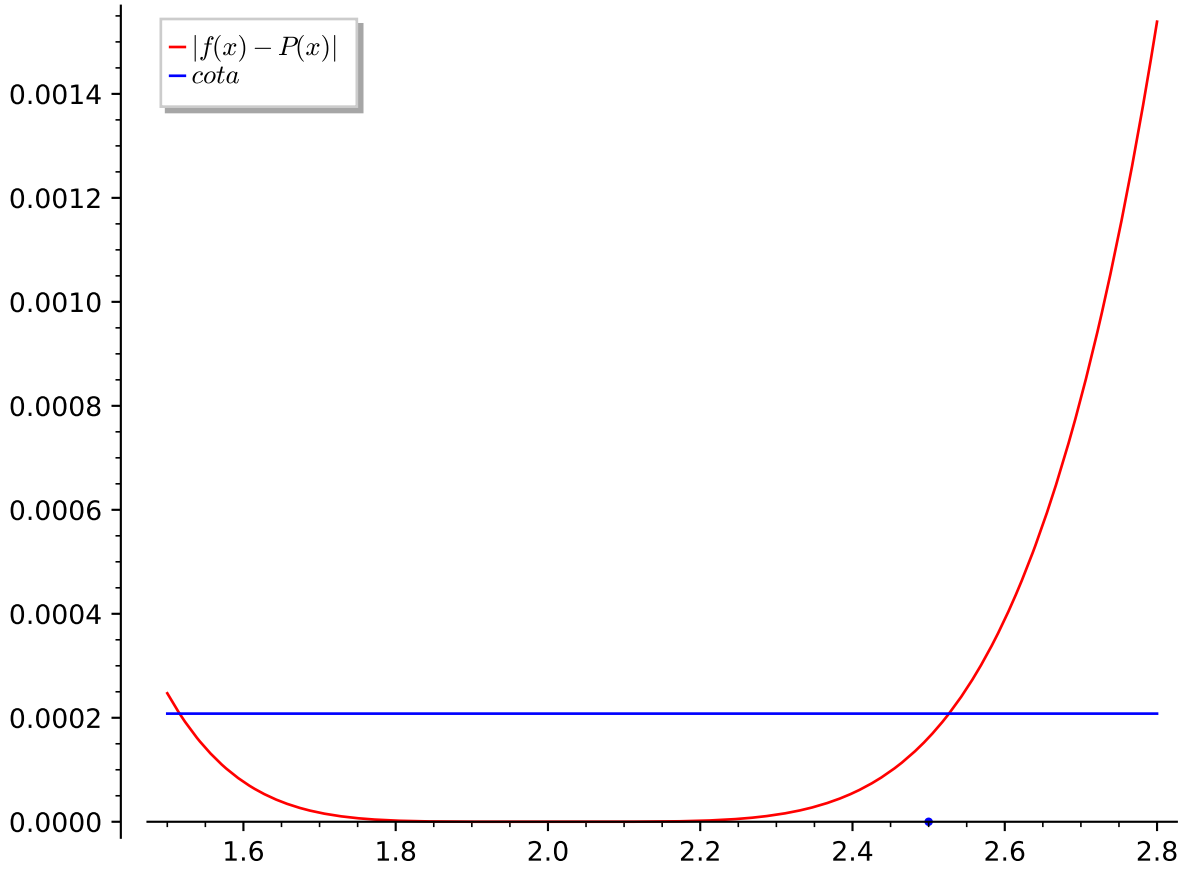
d.



$$M = 0.8$$

$$cota = \frac{M \cdot |x-a|^{n+1}}{(n+1)!}$$
$$cota = \frac{0.8 \cdot |2-2.5|^{5}}{5!}$$
$$cota = -0.000208333333333333$$

e.



Entre 1.5 y 2.45