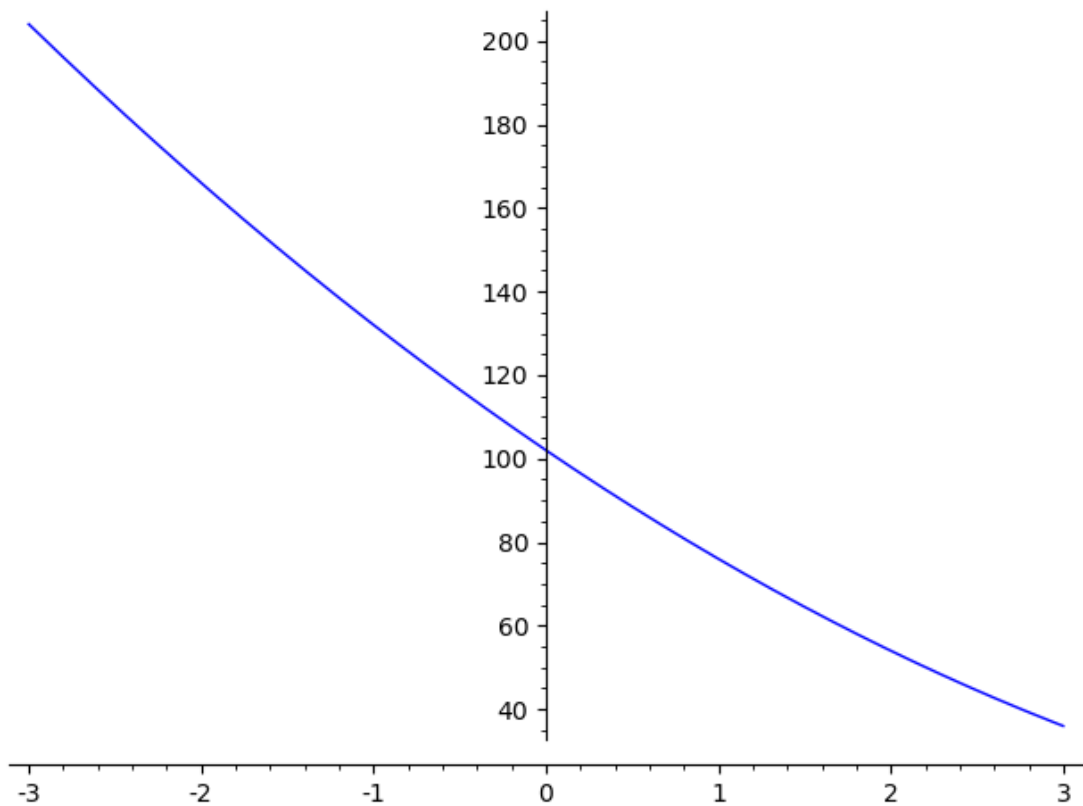


MATH1110H-lab-20260714

July 23, 2026

```
[1]: y = function('y')(x)
      y(x) = 2*(x-7)^2 + 4
      plot(y(x),-3,3)
```

[1]:



```
[2]: diff(y,x)
```

[2]: $x \mapsto 4x - 28$

```
[3]: diff(y,x,2)
```

[3]: $x \mapsto 4$

```
[4]: diff(y,x,3)
```

```
[4]: x |--> 0
```

```
[10]: clear_vars()
      var('x')
      y = function('y')(x)
      desolve( diff(y(x),x) == 2*x, y )
```

```
[10]: x^2 + _C
```

```
[11]: desolve( diff(y(x),x) == 2*x, y, ics=[1,4] )
```

```
[11]: x^2 + 3
```

```
[12]: desolve( diff(y,x) == y, y )
```

```
[12]: _C*e^x
```

```
[13]: desolve( diff(y,x) == x*y, y )
```

```
[13]: _C*e^(1/2*x^2)
```

```
[14]: desolve( diff(y,x) == y*(1-y), y )
```

```
[14]: -log(y(x) - 1) + log(y(x)) == _C + x
```

```
[15]: var('c')
      solve( -log(y(x) - 1) + log(y(x)) == c + x, y )
```

```
[15]: [log(y(x)) == c + x + log(y(x) - 1)]
```

```
[16]: desolve( diff(y,x) == y*(1-y), y, contrib_ode=True )
```

```
[16]: -log(y(x) - 1) + log(y(x)) == _C + x
```

```
[ ]:
```