prob2

April 3, 2022

[ ]:
```
import torch
x = torch.tensor([0.], requires_grad=True)
zero = torch.tensor([0.])
f = torch.square(torch.max(x,zero))
f.backward()
print(x.grad) #prints the gradient of f with respect to x at its current value
```

```
tensor([0.])
```

[ ]:
```
x = torch.tensor([0.], requires_grad=True)
zero = torch.tensor([0.])
f = torch.min(x, zero) + torch.max(x,zero)
f.backward()
print(x.grad) #prints the gradient of f with respect to x at its current value
```

```
tensor([1.])
```

[ ]:
```
x = torch.tensor([1e-50], requires_grad=True)
zero = torch.tensor([0.])
f = torch.min(x, zero) + torch.max(x,zero)
f.backward()
print(x.grad) #prints the gradient of f with respect to x at its current value
```

```
tensor([1.])
```

[ ]:
```
x = torch.tensor([1e-30], requires_grad=True)
zero = torch.tensor([0.])
f = torch.min(x, zero) + torch.max(x,zero)
f.backward()
print(x.grad) #prints the gradient of f with respect to x at its current value
```

```
tensor([1.])
```

[ ]:
```
x = torch.tensor([0.], requires_grad=True)
zero = torch.tensor([0.])
f = torch.min(torch.abs(x), x)
f.backward()
print(x.grad) #prints the gradient of f with respect to x at its current value
```

```
tensor([0.5000])
```

[ ]:
```
x = torch.tensor([0.], requires_grad=True)
zero = torch.tensor([0.])
f = torch.min(x, torch.abs(x))
f.backward()
print(x.grad) #prints the gradient of f with respect to x at its current value
```

```
tensor([0.5000])
```

[ ]:

[ ]: