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### Assignment

Solution:

```
commandwindow
```

```
clear
```

```
clc
```

```
format short
```

```
v = 0.5
```

```
m = 3.5
```

```
g = 9.8
```

```
F = m*g
```

```
v = sqrt(((F + (0.02*v)) * (log(v)^3)) + (10*v) + 17150 / 0.3);
```

```
for i = 1:inf
```

```
iter(i+1) = i
```

```
v(i+1) = sqrt(((F + (0.02*v(i))) * (log(v(i))^3)) + (10*v(i)) + 17150 / 0.3);
```

```
εa(i+1) = abs((v(i+1) - v(i)) / v(i+1) * 100);
```

```
if εa(i+1) <= 1E-11
```

```
break
```

```
end
```

```
end
```

```
table = table(iter; v; εa)
```

Output

iter	v	εa
0	0.5	0
1	239.05	99.791

2	294.17	18.736
3	302.61	2.7894
4	303.85	0.40992
5	304.04	0.060144
6	304.06	0.008822
7	304.07	0.0012941
8	304.07	0.00018981
9	304.07	$2.7842e^{-05}$
10	304.07	$4.0838e^{-06}$
11	304.07	$8.7865e^{-08}$
12	304.07	$1.2888e^{-08}$

Converging at iter = 7;  $V = 304.7$

power

$$F_p = 0.3V^2 - 0.02V$$

$$500 + (1nV)^3$$

If  $V = 304.07$

Recall  $F_c = 9.8 \times 3.5 = 34.30$

Substituting  $V = 304.07$

$$F_p = \frac{0.3 \times (304.07)^2}{500 + (1n(304.07))^3}$$

$$F_p = 40.3816 - 660814$$

$$F_p = \underline{\underline{34.3}}$$