Names:_____

3.1 & 3.2 Practice

$e^1 \approx 2.7, e^{-1} \approx .4$

1) Without a calculator, sketch a graph of $f(x) = \frac{1}{2}e^{(x-3)} - 5$

x	y
-1	.4
0	1
1	2.7

+3

x	y
2	.4
3	1
4	2.7

·(1/2)

x	y
2	.2
3	.5
4	1.35

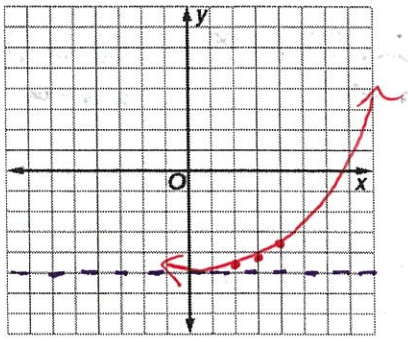
-5

x	y
2	-4.8
3	-4.5
4	-3.65

x	y

$y = e^x$

Growth



2) Without a calculator, sketch a graph of $f(x) = \frac{1}{4}^{(x+1)} - 2$

x	y
-1	4
0	1
1	.25

-1

x	y
-2	4
-1	1
0	.25

-2

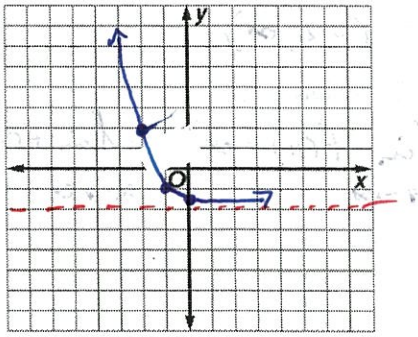
x	y
-2	2
-1	-1
0	-1.75

x	y

x	y

$y = \frac{1}{4}^x$

Decay



3) Without a calculator, sketch a graph of $f(x) = log_4 x$

$4^y = x$

Pick the 'y's

$-1, 0, 1$

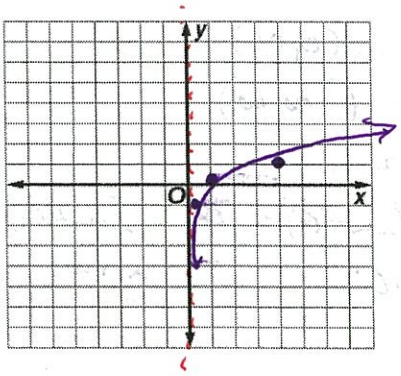
x	y
.25	-1
1	0
4	1

x	y

x	y

x	y

x	y



4) Without a calculator, sketch a graph of $f(x) = ln(x-1) + 3$

+1

x	y
.4	-1
1	0
2.7	1

+3

x	y
1.4	-1
2	0
3.7	1

x	y
1.4	2
2	3
3.7	4

x	y

x	y

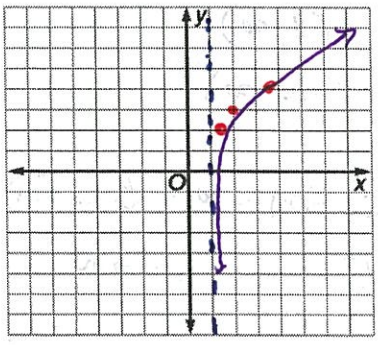
$e^y = x$

$e^y = (x-1) + 3$

V.A.

pick

$-1, 0, 1$



1) Determine the following:

Domain: $(-\infty, \infty)$

Range: $(-5, \infty)$

End Behavior:

$\lim_{x \to \infty} f(x) = \infty$ $\lim_{x \to -\infty} f(x) = 5$

Asymptote Equation: $y = -5$

Increasing: $(-\infty, \infty)$

Decreasing: none

Any intercepts:

Yes a x + y intercept would need a calc to find.

2) Determine the following:

Domain: $(-\infty, \infty)$

Range: $(-2, \infty)$

End Behavior:

$\lim_{x \to -\infty} f(x) = \infty$ $\lim_{x \to \infty} f(x) = -2$

Asymptote Equation: $y = -2$

Increasing: none

Decreasing: $(-\infty, \infty)$

Any intercepts:

Yes a x + y intercept.

y-int: $(0, -1.75)$ x would need a calculator

3) Determine the following:

Domain: $(0, \infty)$

Range: $(-\infty, \infty)$

End Behavior:

$\lim_{x \to 0^+} f(x) = -\infty$ $\lim_{x \to \infty} f(x) = \infty$

Asymptote Equation: $x = 0$

Increasing: $(0, \infty)$

Decreasing: none

Any intercepts:

x-int: $(1, 0)$

4) Determine the following:

Domain: $(1, \infty)$

Range: $(-\infty, \infty)$

End Behavior:

$\lim_{x \to 1^+} f(x) = -\infty$ $\lim_{x \to \infty} f(x) = \infty$

Asymptote Equation: $x = 1$

Increasing: $(1, \infty)$

Decreasing: none

Any intercepts:

x-int; but need a calc