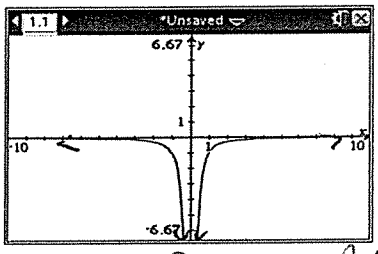
T/PC
Function Families Review

Name: Key
Hour:

For 1 – 6, name the family that each graph belongs to, write a possible equation and tell the type of function. (1 to 1 or Many to 1)

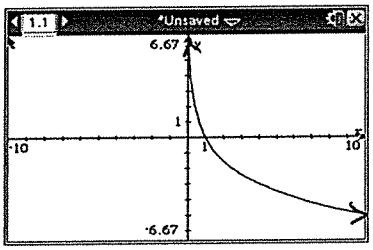
1. 

EVEN

Family: Rational (even)

Equation: $y = \frac{-2}{x^2}$

Type: Many to One

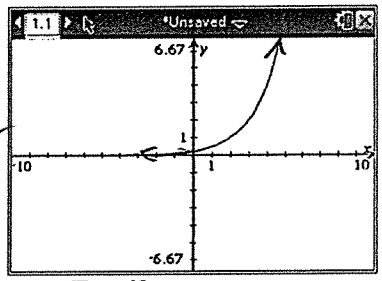
2. 

Neither

Family: Logarithm

Equation: $y = -4\log x$

Type: One to One

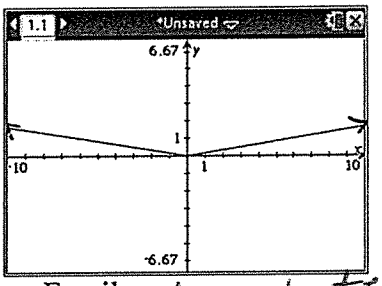
3. 

Neither

Family: Exponential (growth)

Equation: $y = \frac{1}{3}(2)^x$

Type: One to One

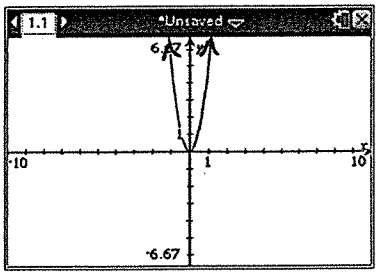
4. 

EVEN

Family: Absolute value

Equation: $y = \frac{1}{5}|x|$

Type: Many to One

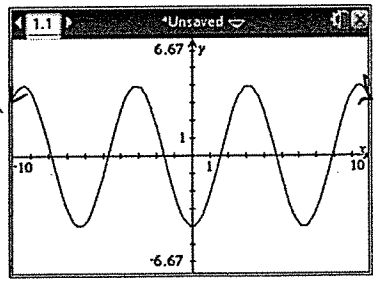
5. 

EVEN

Family: Polynomial (even)

Equation: $y = 3x^2$

Type: Many to One

6. 

EVEN

Family: Trigonometric (cos)

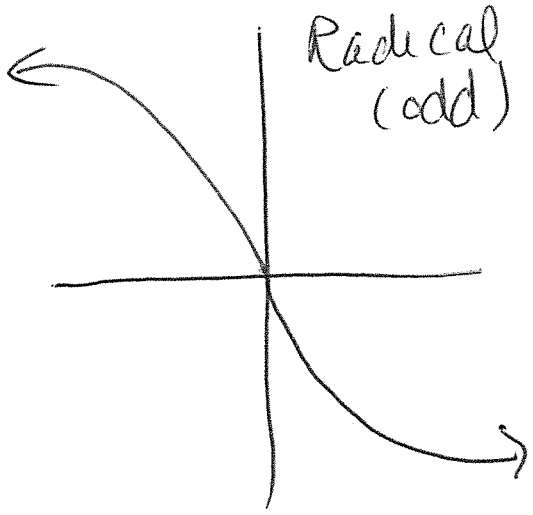
Equation: $y = -4\cos x$

Type: Many to One

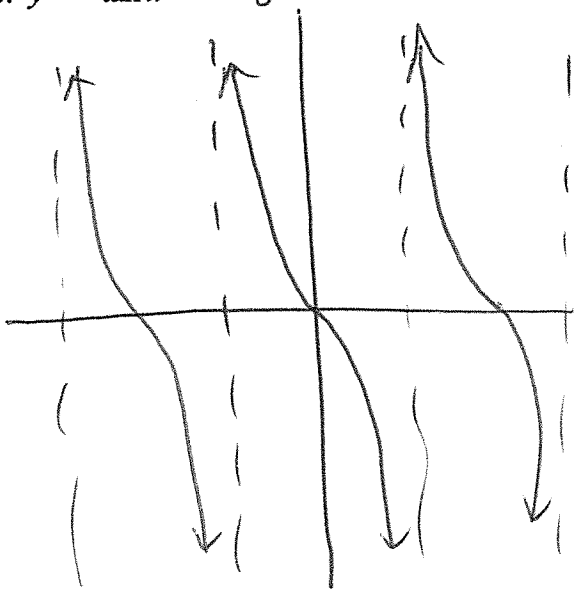
For 7 – 10, tell the family each function belongs to and sketch a graph of each function.

odd 7. $y = -4\sqrt[3]{x}$

Radical (odd)



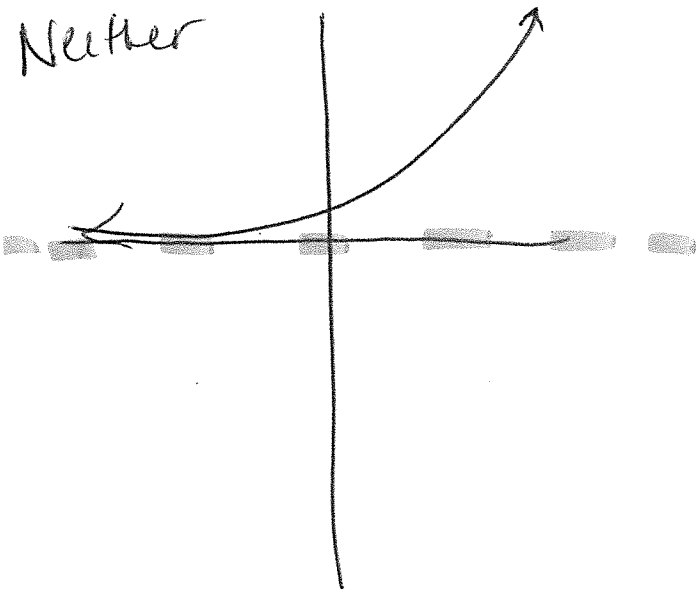
8. $y = -\tan x$ Trigonometric odd



9. $y = 2(3)^x$

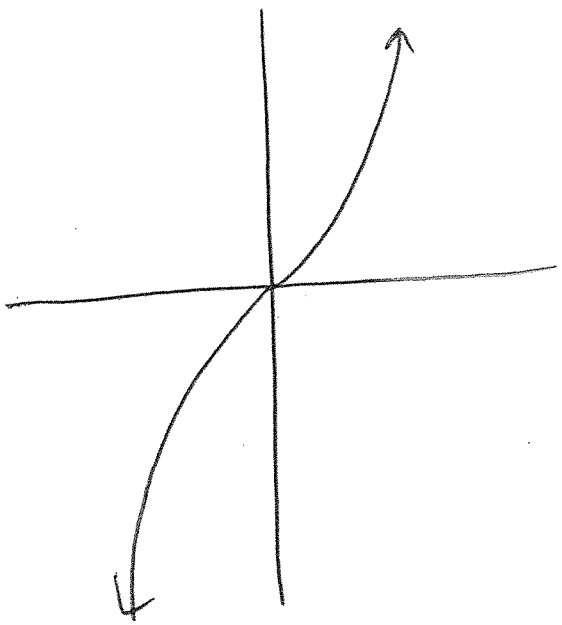
Exponential (growth)

Neither



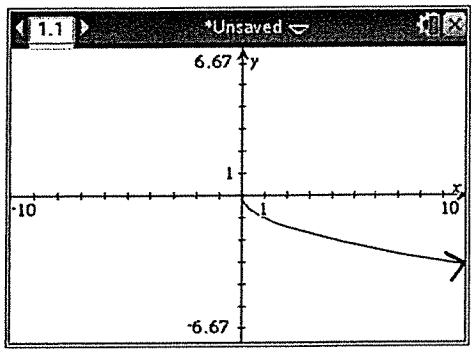
10. $y = 3x^5$ Polynomial (odd)

odd



For 11 – 14, tell the family the graph belongs to, tell the domain and range and tell the end behavior.

11. Neither



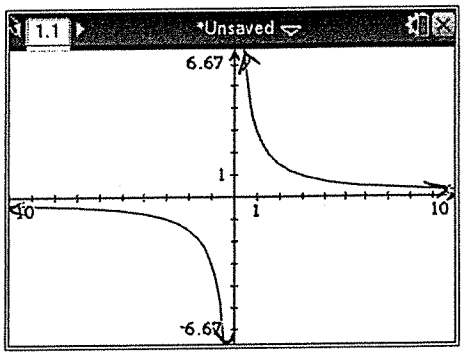
Family: Radical (even)

Domain: $[0, \infty)$

Range: $(-\infty, 0]$

End Behavior: As $x \to \infty, y \to -\infty$
As $x \to 0, y \to 0$

12. Odd



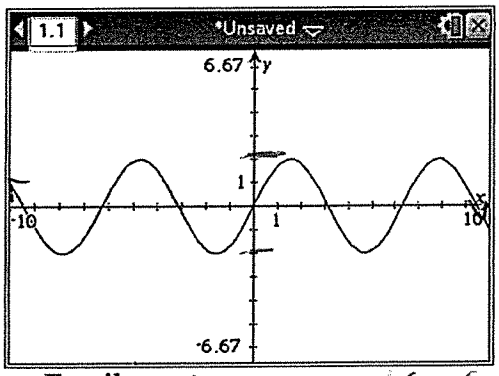
Family: Rational (odd)

Domain: $(-\infty, 0) \cup (0, \infty)$

Range: $(-\infty, 0) \cup (0, \infty)$

End Behavior: As $x \to \infty, y \to 0$
As $x \to -\infty, y \to 0$

13. Odd



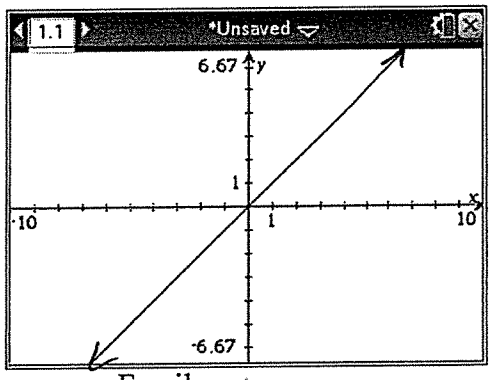
Family: Trigonometric (sin)

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

Range: $[-2, 2]$

End Behavior: none

14. Odd



Family: Linear

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

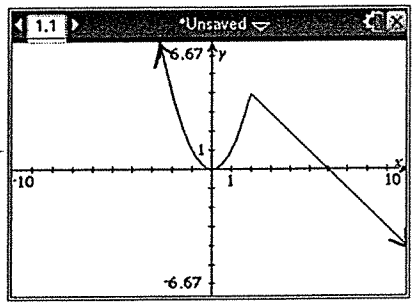
Range: $(-\infty, \infty)$

End Behavior:

As $x \to \infty, y \to \infty$

As $x \to -\infty, y \to -\infty$

For 15 – 18, tell the family the graph belongs to, tell where it is increasing and decreasing and name any intercepts and asymptotes.

15. 

Neither

Family: Piecewise

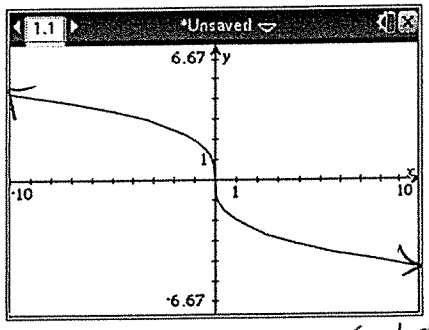
Increasing: (0,2)

Decreasing: ~~(-∞,0)~~ ∪ (2,∞)

x – intercept: (0,0) & (6,0)

y – intercept: (0,0)

Asymptote(s): none (for this one)

16. 

Odd

Family: Radical (odd)

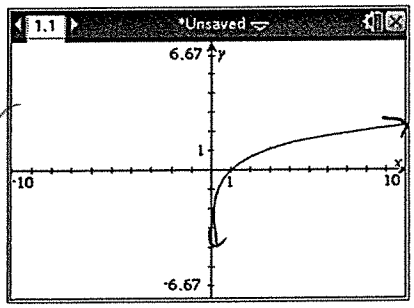
Increasing: —

Decreasing: (-∞,∞)

x – intercept: (0,0)

y – intercept: (0,0)

Asymptote(s): None

17. 

Neither

Family: Logarithm

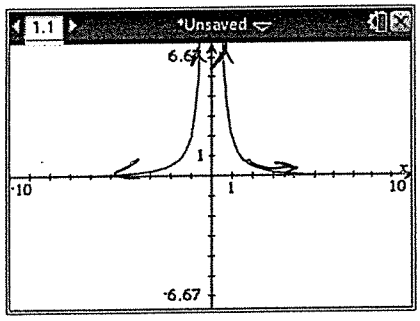
Increasing: (0,∞)

Decreasing: —

x – intercept: (1,0)

y – intercept: none

Asymptote(s): VA at x=0

18. 

even

Family: Rational (even)

Increasing: ~~(-∞,0)~~ (-∞,0)

Decreasing: (0,∞)

x – intercept: none

y – intercept: none

Asymptote(s): HA at y=0
VA at x=0

Go back to all the graphs. Circle the problems that are odd, ~~put a ★ by those that are~~ even.