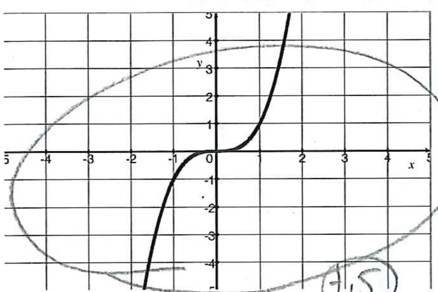
Quiz 3

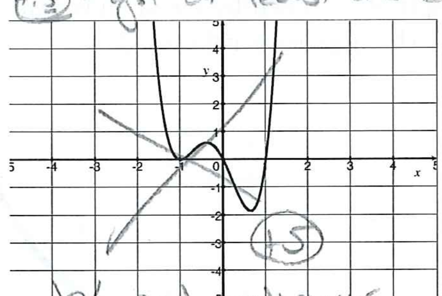
Key

Show *all* your work. No credit is given without reasonable supporting work. There are *two* sides to this quiz.

1. [2] (Polynomial Wks #3) Identify all of the following that could be a graph of a degree three polynomial. (+.5) - got at least one categorized correctly

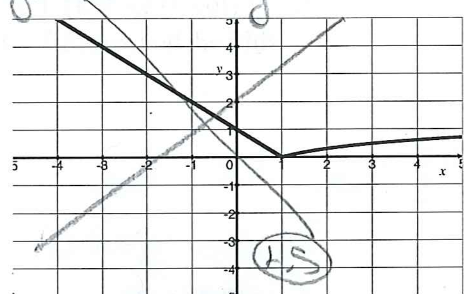


+.5



+.5

b/c end behavior



+.5

has a corner

2. [3] (WebHW9 #16) Divide.

$$\frac{8x^3 - 9x^2 + 2x}{4x^2 - 3x + 1}$$

set up (+.5)

(+.5) (+1)

$$\begin{array}{r} 2x - \tfrac{3}{4} \\ 4x^2-3x+1 \overline{\big)\, 8x^3 - 9x^2 + 2x} \\ -(8x^3 - 6x^2 + 2x) \\ \hline -3x^2 + 0 \\ -(-3x^2 + \tfrac{9}{4}x - \tfrac{3}{4}) \\ \hline -\tfrac{9}{4}x + \tfrac{3}{4} \end{array}$$

(+.5)

$$? \cdot 4x^2 = -3x^2$$

$$\frac{? \cdot 4x^2}{4x^2} = \frac{-3x^2}{4x^2}$$

$$? = -3/4$$

(+.5) alg

$$\frac{8x^3-9x^2+2x}{4x^2-3x+1} = 2x - \frac{3}{4} + \frac{-\frac{9}{4}x + \frac{3}{4}}{4x^2-3x+1}$$

3. [2] (§3.2 #48) Find x given $\log_{16} \sqrt[4]{x} = \frac{1}{4}$.

def/use exp (+.5)
def/use right (+.5)
$\sqrt[4]{\ }$ / fraction power (+.5)
got it (+.5)

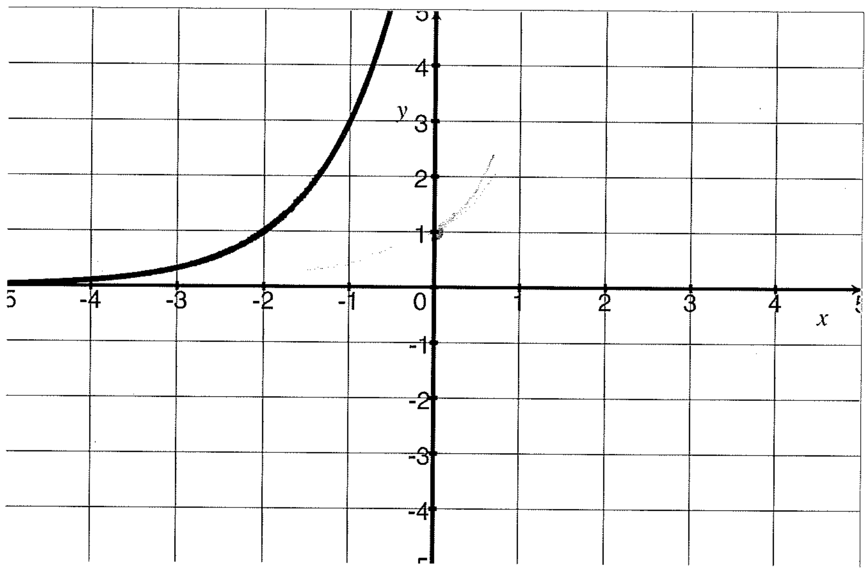
$$\log_{16} \sqrt[4]{x} = 1/4 \qquad \text{or} \qquad \log_{16} \sqrt[4]{x} = 1/4 \qquad \text{or} \qquad 16^{\cancel{\log_{16}} \sqrt[4]{x}} = 16^{1/4}$$

$$\log_{16}(x^{1/4}) = 1/4 \qquad 16^{1/4} = \sqrt[4]{x} \qquad \sqrt[4]{x} = 16^{1/4}$$

$$16^{1/4} = x^{1/4} \qquad (16^{1/4})^4 = x \qquad x = (16^{1/4})^4$$

$$16 = x \qquad 16 = x \qquad x = 16$$

4. [3] (log Wks #3) The graph of f shown below is an exponential function that has been shifted horizontally. Find the algebraic rule for f.



(+.5)[looks like exp.
function shifted
(+.5)[LEFT TWO units

(normal $y=b^x$ goes thru (0,1) but ours is thru (-2,1))

(+.5)

So $y = b^{x+2}$

t

passes thru the point (-1,3) so $3 = b^{-1+2}$] (+1)

$\Rightarrow 3 = b^1$

$3 = b$

So $y = 3^{x+2}$ } got it (+.5)