Quiz 3

Key

Show *all* your work algebraically for each and simplify. No credit is given without supporting work. There are *two* sides to this quiz.

1. [3] Find the number t so that $(-2, t)$ is on the line containing $(5, -2)$ and $(10, -8)$.

Find the equation of the line passing through 1 & 2

slope $\dfrac{-8+2}{10-5} = \dfrac{-6}{5}$ ①

$y + 2 = -6/5 (x - 5)$ => $y = -6/5 x + 6 - 2$ use line info

=> $y = -6/5 x + 4$ (+1)

So t is

$t = -6/5(-2) + 4 = 12/5 + 20/5 = \dfrac{32}{5}$ (+1)

plug in with order of operations
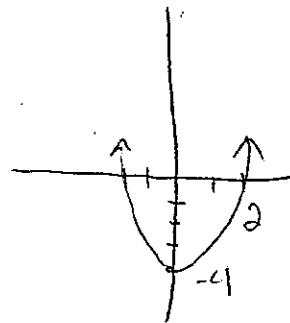
2. [2] Find the vertex of the parabola defined by the rule $x^2 - 4$.

vertex form

$(x - 0)^2 - 4$ or   parabola shifted down 4 units

=> vertex at

$(0, -4)$

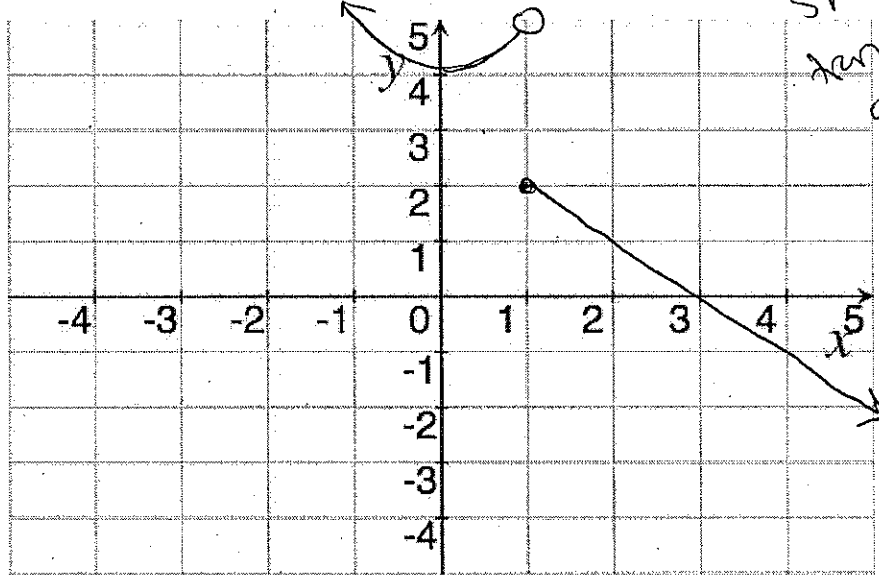=> vertex at $(0, -4)$

1

3. [3] Given that the *function* f is defined by:

$$f(x) = \begin{cases} x^2 + 4 & x < 1 \\ -x + 3 & 1 \le x \end{cases}$$

Graph f.

Shapes (+1)
transformations (+1)
got it (+1)

(a) [2] Does f have an inverse? Why or why not?   (+1)

nope (+2)

f fails the horizontal line test
between $y = 4$ & $y = 5$ noninclusive

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