

$\sqrt{100-0.8}$ (wrong)

name:

BB

[1] Evaluate each expression.

[a] $\left(\frac{8}{125}\right)^{\frac{2}{3}} = \left(\frac{2}{5}\right)^2 = \frac{4}{25}$

~~5~~ 2

[b] $\left(\frac{9a^8}{16b^{10}}\right)^{-\frac{3}{2}} = \left(\frac{3a^4}{4b^5}\right)^{-3}$

$= \frac{64 b^{15}}{27 a^{12}}$ 4

[2] Simplify each expression. Do not leave any negative exponents in your final answer.

[a] $(2x^4y^{-1})^{-2}(3xy^{-2})^3$

$= \frac{y^2}{4x^8} \cdot \frac{27x^3}{y^6}$

$= \frac{27}{4y^4x^5}$ 4

[b] $\frac{9p^2q^{-3}}{(3p^{-1}q)^4}$

$= \frac{9p^2q^{-3}}{81p^{-4}q^4}$

$= \frac{p^6}{9q^7}$ 4

[3] Perform the operation and simplify your answers. $\frac{x^2+2x-8}{x^2+x-12} \cdot \frac{x^2-9}{x^2-3x+2}$

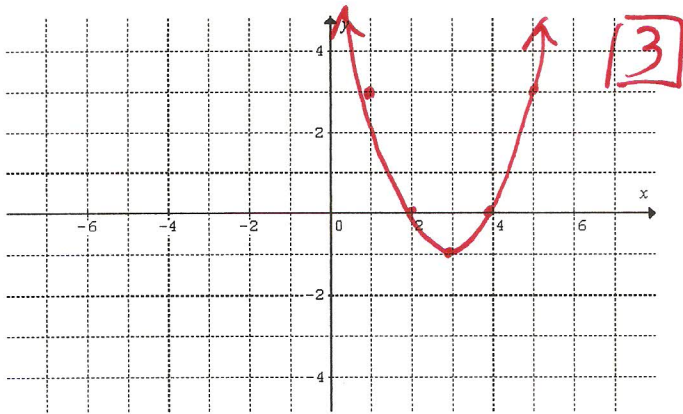
$= \frac{(x+4)(x-2)}{(x+4)(x-3)} \cdot \frac{(x-3)(x+3)}{(x-2)(x-1)}$

$= \frac{x+3}{x-1}, x \neq -4, 1, 2, 3$ 4
 ↑
 optional

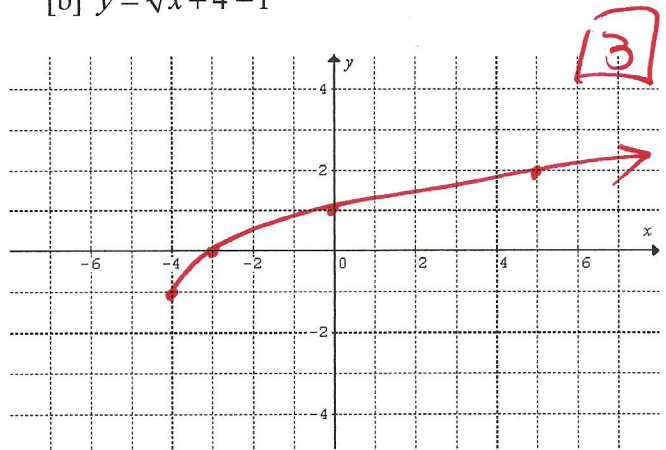
18
 30
 12
 20
 6
 86

[4] Sketch each of the following.

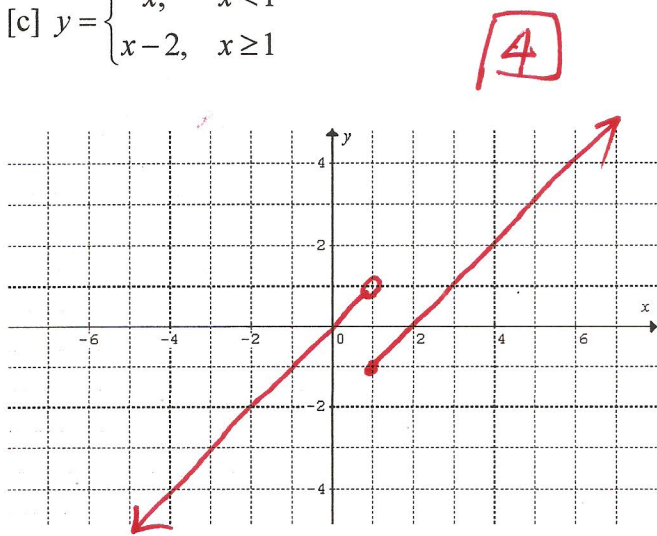
[a] $y = (x-3)^2 - 1$



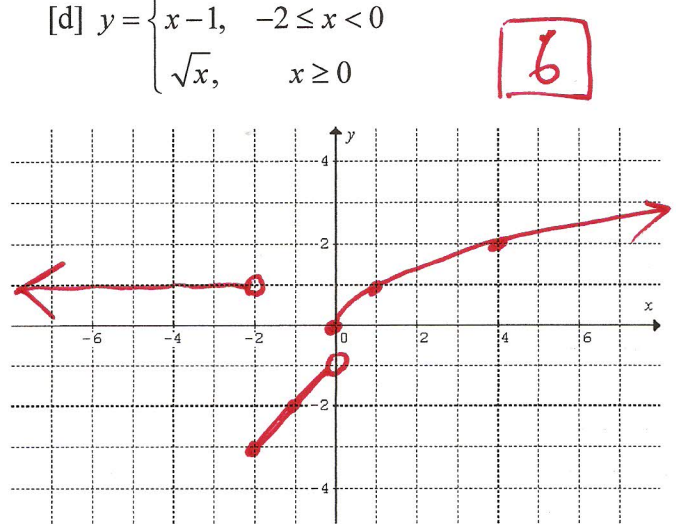
[b] $y = \sqrt{x+4} - 1$



[c] $y = \begin{cases} x, & x < 1 \\ x-2, & x \geq 1 \end{cases}$



[d] $y = \begin{cases} 1, & x < -2 \\ x-1, & -2 \leq x < 0 \\ \sqrt{x}, & x \geq 0 \end{cases}$



[5] State the domain of each function.

[a] $f(x) = \frac{2x+9}{3x-4}$

$\mathbb{R} - \{4/3\}$

2

[b] $f(x) = \sqrt{x^2 - x - 2}$

$x^2 - x - 2 \geq 0$
 $(x-2)(x+1) \geq 0$

 $(-\infty, -1] \cup [2, \infty)$

4

[6] Given: $f(x) = x^2 - 2x + 1$ and $g(x) = 2x + 1$, evaluate the following.

[a] $f(g(x))$

$f(2x+1) = (2x+1)^2 - 2(2x+1) + 1$
 $= 4x^2 + 4x + 1 - 4x - 2 + 1$
 $= 4x^2$

4

[b] $g(f(x)) = g(x^2 - 2x + 1)$
 $= 2(x^2 - 2x + 1) + 1$
 $= 2x^2 - 4x + 3$

4

