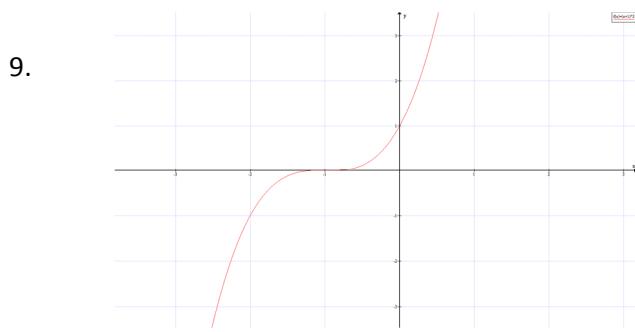
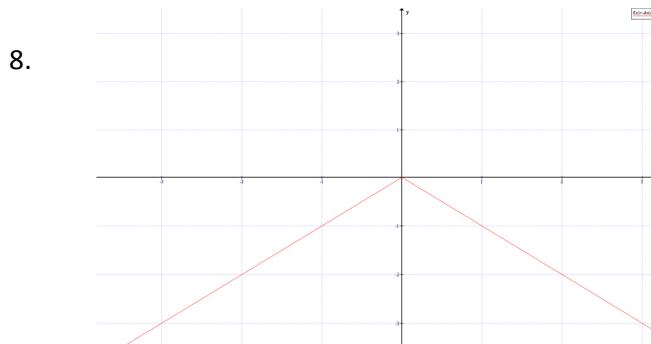
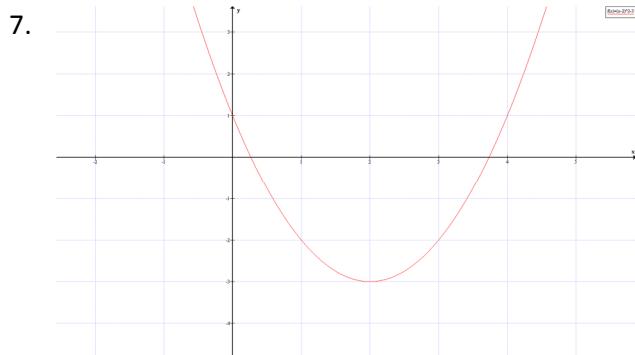


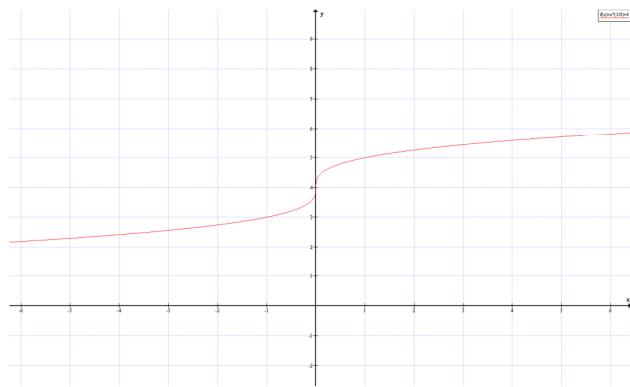
Practice Problems for VPT Calculus Part I (No Trig)

1. Write the domain of $f(x) = \sqrt{x+2}$ in interval notation.
2. Write the domain of $f(x) = \sqrt{x-4}$ in interval notation.
3. Find and simplify $f \circ g(x)$ if $f(x) = x^2 + 2x - 3$ and $g(x) = x + 1$.
4. Find and simplify $f \circ g(x)$ if $f(x) = \frac{1}{x+2}$ and $g(x) = \frac{3}{x-1}$.
5. Simplify $(a^3b)^2(ab^4)$.
6. Simplify $\left(\frac{a^2b^2}{ab^3}\right)^{-2}$.

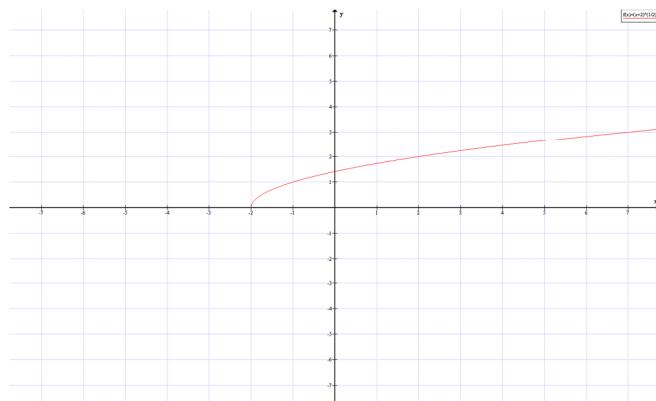
For #7-11, write the function notation for each function that is graphed below.



10.



11.



12. Given $f(x) = 4x + 2$, find $f^{-1}(x)$.

13. Given $f(x) = \frac{3}{2-x}$, find $f^{-1}(x)$.

14. Graph $f(x) = \begin{cases} -2x & \text{if } x < 1 \\ x - 5 & \text{if } x \geq 1 \end{cases}$

15. Graph $f(x) = \begin{cases} x^2 & \text{if } x < 0 \\ 5 & \text{if } x = 0 \\ x + 2 & \text{if } x > 0 \end{cases}$

For Problems 16-18, $f(x) = \begin{cases} x^2 & \text{if } x < 0 \\ 5 & \text{if } x = 0 \\ x+2 & \text{if } x > 0 \end{cases}$

16. Find $f(-3)$.

17. Find $f(0)$.

18. Find $f(4)$.

19. Given $f(x) = x^2 + 3x - 4$, find and simplify the Difference Quotient $\frac{f(x+h) - f(x)}{h}$.

20. Given $f(x) = 2x^2 - 3x + 7$, find and simplify the Difference Quotient $\frac{f(x+h) - f(x)}{h}$.

21. Rationalize the denominator of $\frac{\sqrt{z} + 3}{\sqrt{z} - 3}$.

22. Rationalize the denominator of $\frac{x}{\sqrt{x} + 4}$.

23. Write as a single logarithm: $\ln x + 2 \ln(x+2) - 4 \ln(x-3)$

24. Write as a single logarithm: $2 \ln 3 - \ln(6^2 - 4)$

25. Write using exponents: $(\sqrt[3]{x})^4$

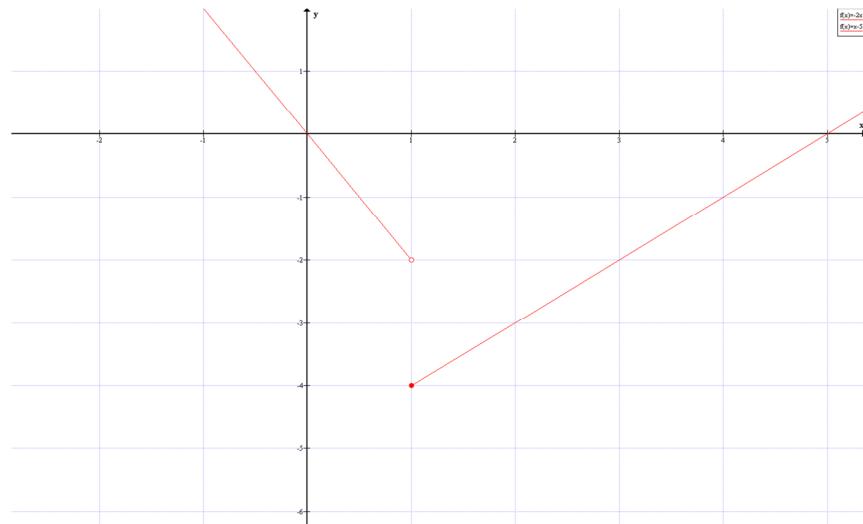
26. Write in exponential form: $\ln 2 = x$

27. Write in exponential form: $\log_a 7 = 2$

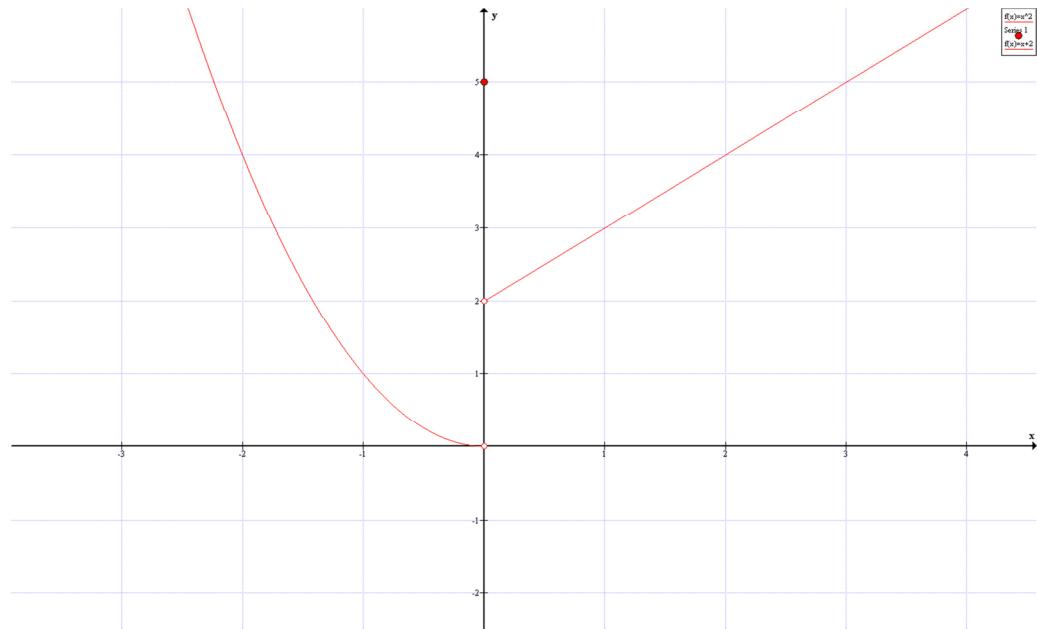
Answers to Practice Problems for VPT Calculus Part I (No Trig)

1. $D = [-2, \infty)$
2. $D = [0, \infty)$
3. $f \circ g(x) = x^2 + 4x$
4. $f \circ g(x) = \frac{x-1}{2x+1}$
5. a^7b^6
6. $\frac{b^2}{a^2}$
7. $f(x) = (x-2)^2 - 3$
8. $f(x) = -|x|$
9. $f(x) = (x+1)^3$
10. $f(x) = \sqrt{x} + 3$
11. $f(x) = \sqrt[3]{x} - 4$
12. $f^{-1}(x) = \frac{x-4}{2}$
13. $f^{-1}(x) = \frac{3-2x}{-x} = \frac{2x-3}{x}$

14.



15.



16. $f(-3)=9$

17. $f(0)=5$

18. $f(4)=6$

19. $2x+h+3$

20. $4x+2h-3$

21. $\frac{z+6\sqrt{z}+9}{z-9}$

22. $\frac{x(\sqrt{x}-4)}{x-16}$

23. $\ln\left(\frac{x(x+2)^2}{(x-3)^4}\right)$

24. $\ln\left(\frac{9}{32}\right)$

$$25. \ x^{\frac{4}{3}}$$

$$26. \ e^x = 2$$

$$27. \ a^2 = 7$$