

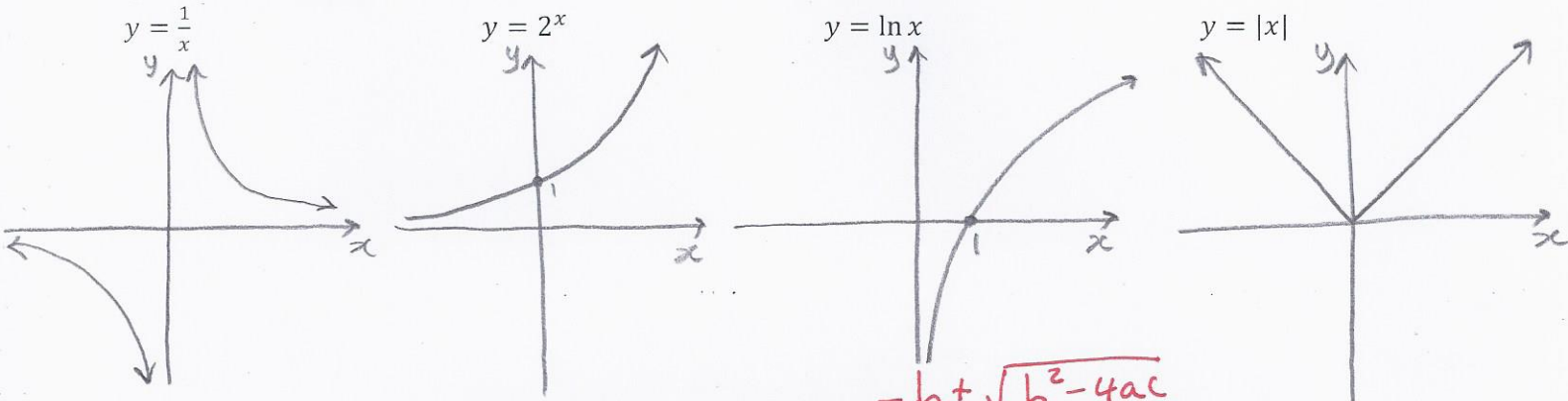
Name: ANSWERSInstructions: No calculators! Answer all problems in the space provided! Do your rough work on scrap paper.

1. Expand and simplify:

(a) $(a-b)^2 = a^2 - 2ab + b^2$ (b) $(x+y)(a+b) = ax + bx + ay + by$

(c) $a(x+2) = ax + 2a$ (d) $(a+b)c = ac + bc$

2. Sketch the following:

3. For $ax^2 + bx + c = 0$, state the quadratic formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ 4. Find the x- and y-intercepts of $y = 6x^2 + x - 1$: x-int: $x = -1/2, x = 1/3$, y-int: $y = -1$ 5. If $f(x) = x^2 - x + 1$, compute and simplify $\frac{f(x+h) - f(x)}{h} = 2x - 1 + h$ 6. Factor: $2x^3 - 2x^2 - 4x = 2x(x+1)(x-2)$ 7. Simplify: $\frac{x^3 + 2x^2 - 25x - 50}{x-5} = (x+5)(x+2)$

8. Complete the rules:

(a) $a^x \cdot a^y = a^{x+y}$ (b) $\ln(xy) = \ln x + \ln y$ (c) $n \ln x = \ln x^n$

Bonus:

1. For a function $f(x)$, write the formula for its average rate of change between $x = a$ and $x = b$:

$$f_{ave} = \frac{f(b) - f(a)}{b - a}$$

2. Simplify $e^{2 \ln x^2 - 3 \ln y} = \frac{x^4}{y^3}$