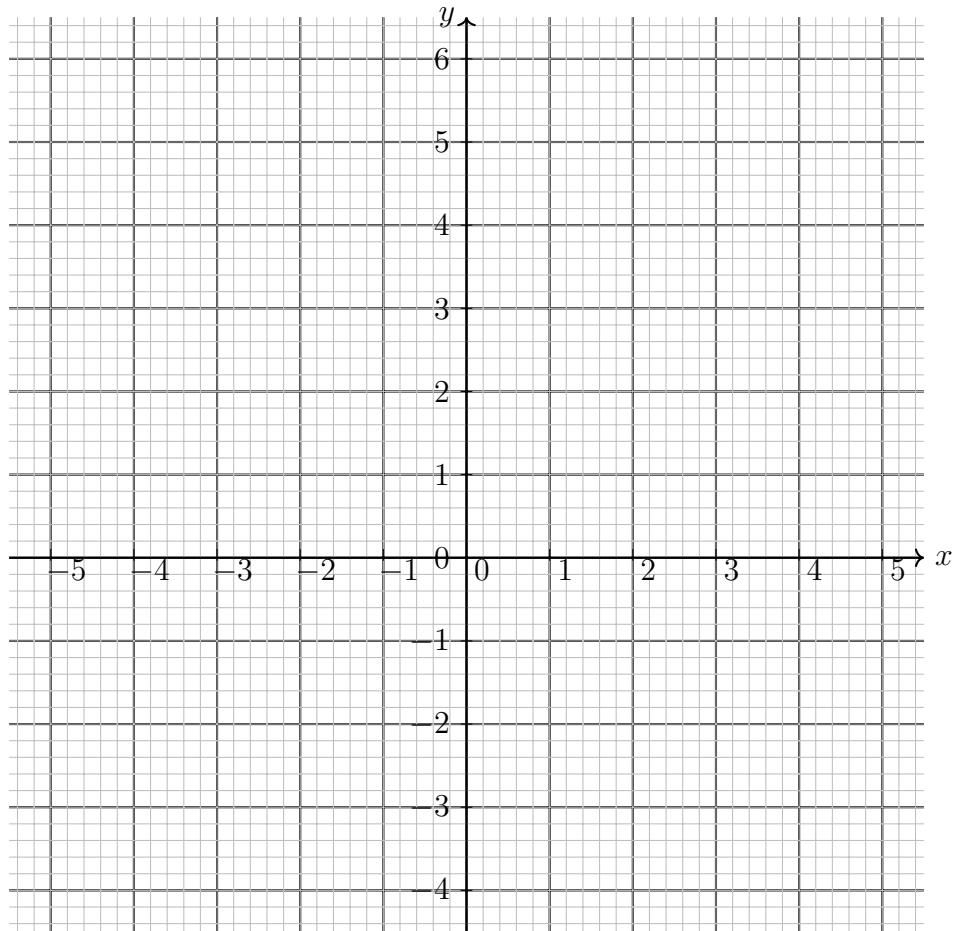


4.8 Classwork: Quadratics review, exponents

1. Let $y = x^2 - 5x + 4$ and $2x + y = 4$
 - (a) Rewrite quadratic in vertex form and state the vertex as an ordered pair.
 - (b) Factor the quadratic function and write down its roots.
 - (c) Graph the parabola, labeling it. Mark the intercepts and graph the axis of symmetry as a dotted line, labeling it with its equation.
 - (d) Graph linear equation and label it with its name or equation.
 - (e) Mark the intersections of the two equations as ordered pairs.



Simplify, leaving no negative or fractional exponents.

2. $2x^{-3}y \times \frac{1}{4}x^2y^{-1}$

3. $a^{\frac{3}{4}} \times \left(\frac{\sqrt{a}}{b^4}\right)^{\frac{1}{2}}$

4. $\ln e^4$

5. $\log 5^2 + \log 4$

6. $(2x^2 - x - 5)(x - 3) - (x^2 + 3x - 5)(2x - 3)$

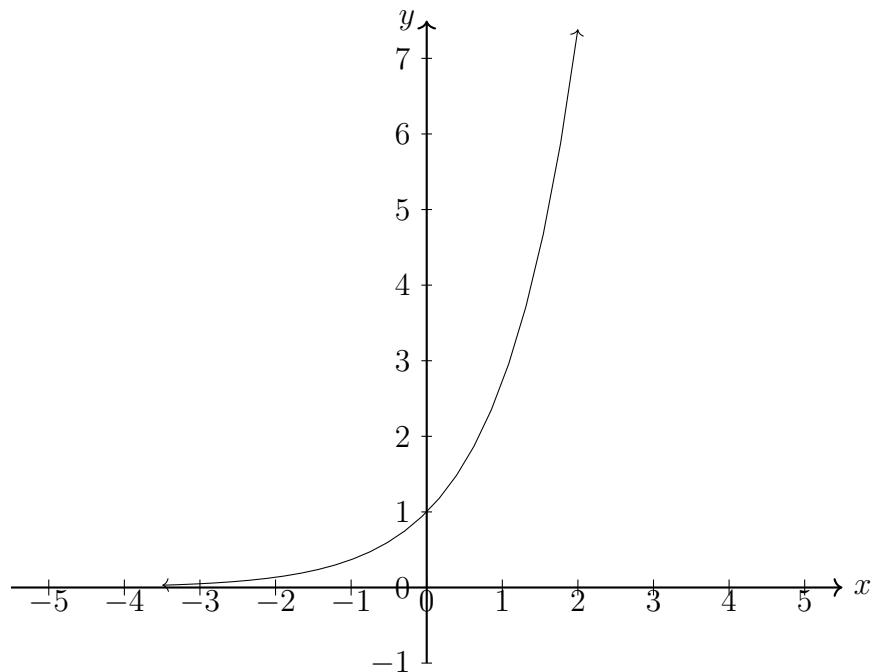
7. Factor the expression and then solve for x : $2x^3 - 2x^2 - 24x = 0$

8. Let $f(x) = 2x - 5$ and $g(x) = (x - 1)^2$

(a) Find $(f \circ g)(x)$

(b) Find $f^{-1}(x)$

9. The function $f(x) = e^x$ is shown on the graph. Sketch $g(x) = f(x - 2) + 3$. Plot and label the asymptote(s).



10. The universal set U is defined as the set of positive integers less than 13. The subsets A and B are defined as follows:

$$A = \{\text{integers that are multiples of 3}\}$$

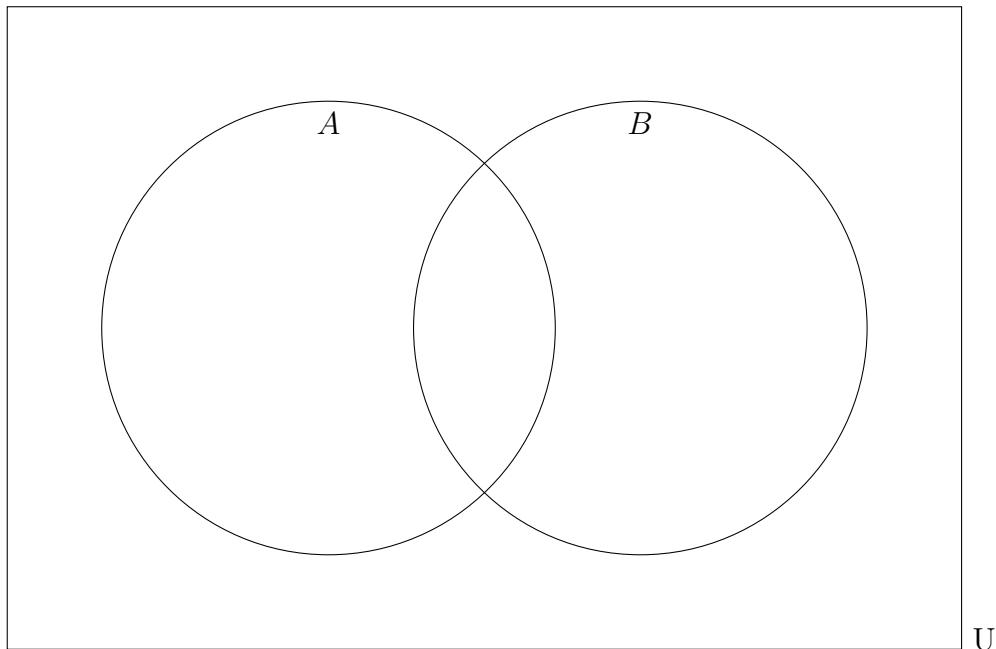
$$B = \{\text{prime numbers}\}$$

(note: Prime numbers have only themselves and one as factors. One is not considered a prime.)

(a) List the members of A

(b) List the members of B

(c) Place the elements of A and B in the appropriate regions in the Venn diagram below.



(d) List the items in the set $(A \cup B)'$

(e) If an element is selected at random, what is the probability that it is a member of the set $A \cap B$?