

This practice exam is for review purposes only; the actual exam may differ in format and content. Use it as a study aid, and refer to the syllabus for specific details. Solutions with explanations can be found on my YouTube channel. - Robert Pearce

Name: _____

1. Find the domain: $\frac{x^3+2x^2}{x^2+3x+2}$

2. Find the domain: $\frac{25-x^2}{x^2+4x-5}$

3. Find the domain: $\sqrt{x+3}$

4. Find the domain: $\frac{1}{\sqrt{x-5}}$

5. Factor the polynomial: $-7x^2y^3 - 28xy^2 - 35xy$

6. Factor the polynomial by grouping: $3x^3 - 12x^2 + 4x - 16$

7. Factor the polynomial: $x^2 + 24x + 23$

8. Factor the polynomial: $-3x^2 + 2x + 8$

9. Factor the polynomial: $25x^2 - 64$

10. Factor the polynomial: $8x^3 + 27$

11. Perform the operation and write the expression in standard form: i^3

12. Write as a pure imaginary number: $\sqrt{-45}$

13. Perform the operation and write the expression in standard form: $(2 + 3i) + (4 - 5i)$

14. Rewrite the function: $y = \sqrt{x}$ but shifted down 2 units.

15. Rewrite the function: $f(x) = x^2$ with the translations below.

(a) Vertical Stretch by factor of 3:

(b) Reflection over x-axis:

(c) Translation left 5 units:

16. Rewrite the function: $f(x) = 2\sqrt{x+5} - 2$ with the translations below.

(a) Translation up 2 units:

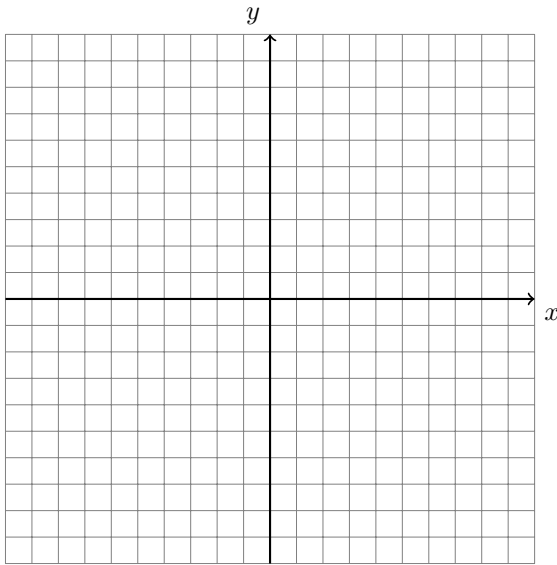
(b) Reflection over x-axis:

17. Solve the following equation using the square root method: $(4y + 8)^2 = 64$

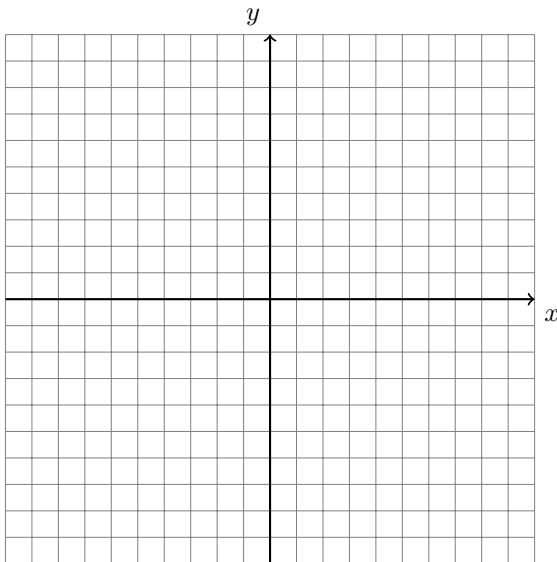
18. Solve the equation: $x^2 - 14x + 58 = 0$

19. Solve the equation: $25x^2 + 4 = 20x$

20. Find the center, radius, and graph: $x^2 + y^2 = 16$



21. Find the equation of a circle with center: $(x - 3)^2 + (y + 4)^2 = 25$



22. Joe and Steve are saving money. Joe starts with \$105 and saves \$5 per week. Steve starts with \$5 and saves \$15 per week. After how many weeks do they have the same amount of money?
23. A tennis club charges \$100 to join the club and \$10 for every hour using the courts. Write an equation to express the cost C in terms of h hours playing tennis.
24. A phone plan costs \$30 per month, and there is an additional charge of \$0.10 per minute for calls. Write an equation to express the cost C in terms of m minutes.