

Name:

Do not begin your test until instructed to do so. You will have 45 minutes to complete the test. The **only** items you are permitted to use are a pencil, eraser, and calculator. Any use of any other item will result in getting a 0 on the test. Keep your eyes on your own test. Getting answers in any form from others will result in getting a 0 on the test. Each problem is worth 4 to 6 points: half for showing your work (when appropriate), and half for the right answer. Box your answers. Talking while any test is out will result in a 10 point penalty.

Good luck! (Even though this is a matter of skill, not luck.)

Page	Points	Score
2	39	
3	40	
4	21	
Total:	100	

1. (4 points) Find the intersection and union of the sets $\{1, 3, 5, 7\}$ and $\{2, 4, 6\}$
2. (4 points) Name the property illustrated by the equation $6 + 4 = 4 + 6$ (be specific).
3. (4 points) Name the property illustrated by the equation $(6 \cdot 8) \cdot 5 = 6 \cdot (8 \cdot 5)$ (be specific).
4. (5 points) Express the distance between 4 and 15 using absolute value. Then find the distance.
5. (4 points) Write an expression for the phrase "Six times the product of negative five and a number."
6. (5 points) Simplify $\frac{24x^3y^5}{32x^7y^{-9}}$.
7. (4 points) Write -7.16×10^6 in decimal notation, and 0.0027 in scientific notation.
8. (4 points) Simplify $\sqrt{10x} \cdot \sqrt{8x}$.
9. (5 points) Rationalize the denominator of $\frac{7}{\sqrt{5}-2}$

10. (5 points) Simplify $5\sqrt[3]{16} + \sqrt[3]{54}$.

11. (5 points) Simplify $\frac{20x^{1/2}}{5x^{1/4}}$.

12. (5 points) Distribute $(7x + 5y)^2$.

13. (6 points) Factor $x^3 - 3x^2 + 4x - 12$.

14. (4 points) Factor $x^2 - 8x + 14$.

15. (5 points) Factor $4x^2 + 16x + 15$.

16. (5 points) Factor $8x^3 - 1$.

17. (5 points) Factor $4x^{-2/3} + 8x^{1/3}$.

18. (4 points) Find the domain of $\frac{x+5}{x^2-25}$.

19. (6 points) Simplify $\frac{x^2-9}{x^2} \cdot \frac{x^2+4x}{x^2+x-12}$.

20. (6 points) Simplify $\frac{3x}{x^2+3x-10} - \frac{2x}{x^2+x-6}$.

21. (5 points) Simplify $\frac{\frac{1}{x} + \frac{1}{y}}{x+y}$.

22. (5 points (bonus)) Fully factor $-12(x+1)^{-1/2} + x(x+1)^{1/2}$.

23. (5 points (bonus)) Simplify $\frac{y^3-8}{y^2-4} \div \frac{y^2+2y+4}{y+2}$.