

Be able to do the following problems without a calculator. You will be able to use your power sheet.

Evaluate the expression.

1. $-125^{1/3}$

2. $32^{1/5}$

3. $\sqrt[4]{81}$

4. $\sqrt[3]{-27}$

5. $8^{5/3}$

6. $16^{-3/2}$

7. $(\sqrt[3]{27})^2$

8. $(\sqrt[3]{64})^{-4}$

Write the expression in simplest form. Assume all variables are positive.

9. $\sqrt[5]{16} \cdot \sqrt[5]{8}$

10. $\sqrt[3]{64x^4y^2}$

11. $(3^4 \cdot 5^4)^{-1/4}$

12. $\left(\frac{25a^{10}b^{16}}{4}\right)^{-1/2}$

13. $\sqrt[5]{\frac{x^6}{y^4}}$

14. $\sqrt{\frac{75x^5y^6}{36xz^5}}$

15. $\sqrt[3]{2} + 2\sqrt[3]{128}$

16. $12\sqrt[4]{2} - 7\sqrt[4]{512}$

17. $2\sqrt{27} - 3\sqrt{48}$

Let $f(x) = 2x + 9$, $g(x) = x^2 - 25$, and $h(x) = -4x^{1/2}$. Perform the indicated operation and state the domain.

18. $f(x) + g(x)$

19. $f(x) - h(x)$

Domain: _____

Domain: _____

20. $\frac{f(x)}{g(x)}$

21. $g(h(x))$

Domain: _____

Domain: _____

22. $g(f(x))$

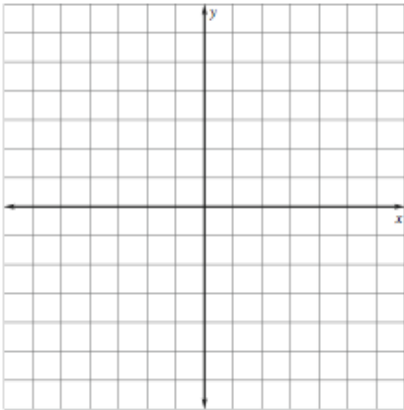
23. $\frac{f(x)}{h(x)}$

Domain: _____

Domain: _____

Graph the function. Then describe the change and state the domain and range.

24. $y = -6\sqrt[3]{x}$

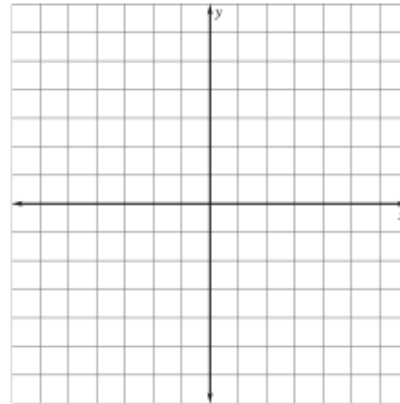


| x | y |
|---|---|
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Domain: _____ Range: _____

Transformation: _____

25. $y = \frac{1}{2}\sqrt{x-4} - 2$

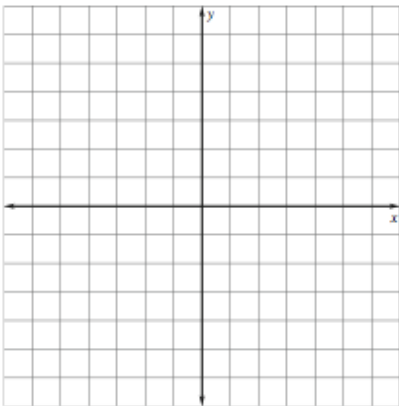


| x | y |
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Domain: _____ Range: _____

Transformation: _____

26. $f(x) = \sqrt[3]{x+3} + 4$

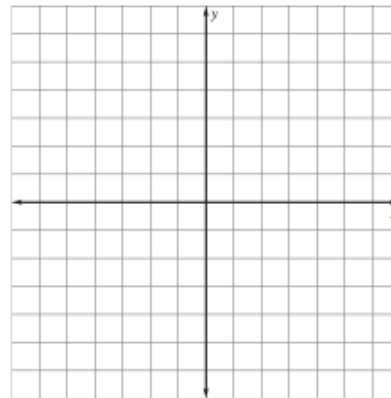


| x | y |
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Domain: _____ Range: _____

Transformation: _____

27. $f(x) = \sqrt{x+2}$



| x | y |
|---|---|
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Domain: _____ Range: _____

Transformation: _____

Solve the equation. Check for extraneous solutions.

28. $\sqrt[4]{3x+7} = 4$

29. $4x^{2/3} = 36$

30. $x-3 = \sqrt{x-1}$

31. $x^3 + 100 = 612$