

WHY DO DERIVATIVES NEVER GROW OLD?

Find the derivative of each function (written in two forms).
Match with the result in the last two columns.

| f(x) | | f'(x) | |
|----------------------------|------------------|---------------|----------------------------|
| reciprocal radical form | power form | power form | reciprocal radical form |
| | $3x^2$ | 1) | |
| | $2x$ | 2) | |
| $\frac{1}{x}$ | 3) | 4) | 5) |
| \sqrt{x} | 6) | 7) | 8) |
| 9) | $-x^{-2}$ | 10) | 11) |
| | $\frac{1}{4}x^4$ | 12) | |
| 13) | $2x^{-1/2}$ | 14) | 15) |
| 16) | $x^{1/3}$ | 17) | 18) |
| $\frac{2x\sqrt{x}}{3}$ | 19) | 20) | 21) |
| $\sqrt[5]{x^2}$ | 22) | 23) | 24) |
| | 25) | $3x^2$ | |
| | 26) | 6 | |
| 27) | 28) | $-6x^{-4}$ | 29) |

| f(x) or f'(x) | f(x) or f'(x) |
|--------------------------|-------------------------------|
| power form | reciprocal radical form |
| A. x^3 | A. $-\frac{1}{x^2}$ |
| B. $\frac{1}{2}x^{-1/2}$ | E. $\frac{2}{x^3}$ |
| C. $\frac{2}{3}x^{3/2}$ | H. $\sqrt[3]{x}$ |
| E. $x^{1/2}$ | I. \sqrt{x} |
| H. x^{-1} | L. $\frac{1}{2\sqrt{x}}$ |
| I. $x^{2/5}$ | M. $\frac{1}{3}\sqrt[3]{x}$ |
| M. $\frac{1}{3}x^{-2/3}$ | R. $-\frac{6}{x^4}$ |
| N. $\frac{2}{5}x^{-3/5}$ | S. $\frac{1}{3\sqrt[3]{x^2}}$ |
| P. 2 | T. $\frac{1}{x\sqrt[3]{x}}$ |
| R. $6x$ | U. $\frac{2}{\sqrt{x}}$ |
| S. $-x^{-3/2}$ | W. $-\frac{1}{x\sqrt{x}}$ |
| T. $2x^{-3}$ | Y. $\frac{2}{5\sqrt[5]{x^3}}$ |
| Y. $-x^{-2}$ | Z. $\frac{2}{5\sqrt[5]{x}}$ |