

# ★ Stations 1 ★



Name: Key

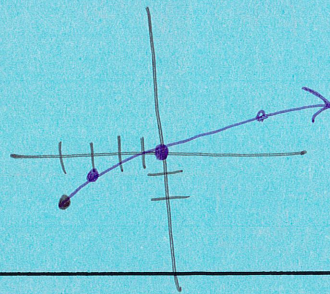
1  $f(x) = 4x - 9$   $g(x) = 3x^2$

① Find  $g - f(x)$   $3x^2 - (4x - 9)$   
 $3x^2 - 4x + 9$

②  $f \cdot g(x)$   $(4x - 9)(3x^2)^2$   $12x^3 - 27x^2$

③  $f \circ g(x)$   
 $f(3x^2) = 4(3x^2) - 9$   
 $12x^2 - 9$

2  $y = \sqrt{x + 4} - 2$   
 Moves Left + 4  
 down 2



paint  $y = \sqrt{x+4}$   
 Domain  
 Ex:  $x \geq -4$

Range  
 Ex:  $y \geq -2$

$\begin{array}{r} 16 \\ 0 \\ 4 \\ 12 \\ 9 \\ 3 \end{array}$

3  $\sqrt[3]{-27x^6}$   
 $-3x^2$

$\sqrt[4]{32s^{12}t^5}$   
 $\sqrt[4]{16 \cdot 2 \cdot 2^5 s^{12} t^5}$

$4s^3 t \sqrt[4]{2t}$

4  $(2 - \sqrt{5})(2 + \sqrt{5})$

$4 + 2\sqrt{5} - 2\sqrt{5} - 5$

$-1$

$\frac{\sqrt{48a^5b}}{\sqrt{12ab}}$

$\sqrt{\frac{48a^5b}{12ab}}$

$\sqrt{4a^4}$   
 $2a^2$

5  $8^{\frac{5}{3}}$   $27^{\frac{1}{2}}$   $27^{\frac{4}{3}}$   $3^{\frac{1 \cdot 2 + 4 \cdot 2}{2 \cdot 2 + 3 \cdot 2}}$   
 $2^5 = 32$   $\sqrt{27} \cdot (\sqrt[3]{27})^4$   $3^{\frac{3+8}{6}}$   $3^5 \sqrt{3}$

⑥  $g^{\frac{4}{7}} \cdot g^{\frac{3}{7}}$   
 $g^{\frac{7}{7}} = g$

⑦  $\sqrt[5]{X} \cdot \sqrt[5]{X^3}$   
 $X^{\frac{1 \cdot 5}{5}} \cdot X^{\frac{3 \cdot 2}{5 \cdot 2}}$   
 $X^{\frac{5}{10}} \cdot X^{\frac{6}{10}}$   
 $X^{\frac{11}{10}}$

6  $f(x) = x^2 + 2x - 3$   
 $g(x) = x + 1$

find

$f(g(x)) = x^2 + 4x + 1$

$f(x+1)$

$(x+1)^2 + 2(x+1) - 3$   
 $x^2 + 2x + 2 + 2x + 2 - 3$

$g(f(x))$   
 $g(x^2 + 2x - 3)$   
 $(x^2 + 2x - 3) + 1$

$x^2 + 2x - 2$

7 Find the Inverse  
 $f(x) = \frac{4x + 1}{5}$

$y = \frac{4x + 1}{5}$

$5x = 4y + 1$

$x = \frac{4y + 1}{5}$

$\frac{5x - 1}{4} = \frac{4y}{4}$

$f^{-1}(x) = \frac{5x - 1}{4}$

8  $\sqrt[3]{27(x+3)^3}$

$3(x+3)$   
 or  
 $3x + 9$

$\sqrt[4]{\frac{8}{12}}$   
 $\sqrt[4]{\frac{a^8}{b^{12}}}$

$a^2 | b^3$

$\sqrt[5]{243x^{10}u^{25}}$

$3x^2 u^5$

# Stations



Name: \_\_\_\_\_

**A**  $\sqrt[3]{54}$   $\sqrt{144a^3b^5}$   
 $\sqrt[3]{27} \sqrt[3]{2}$   $12ab^2\sqrt{ab}$   
 $\sqrt[3]{3} \sqrt[3]{2}$   
 $4\sqrt{6xy} \cdot 3\sqrt{7x^2y}$   
 $12\sqrt{42x^2y^2}$   $12xy\sqrt{42}$

**B**  $6\sqrt{72} + 7\sqrt{98} - 5\sqrt{0}$   
 $6 \cdot \sqrt{36} \sqrt{2} + 7 \cdot \sqrt{49} \sqrt{2} - 5\sqrt{2}$   
 $6 \cdot 6\sqrt{2} + 7 \cdot 7\sqrt{2} - 5\sqrt{2}$   
 $36\sqrt{2} + 49\sqrt{2} - 5\sqrt{2}$   
 $80\sqrt{2}$

**C**  $\frac{\sqrt{6m^5}}{\sqrt{p^{11}}}$   $\frac{\sqrt{6m^5} \cdot m^2 \sqrt{6m}}{p^5 \sqrt{p} \cdot p^5 \sqrt{p} \cdot \sqrt{p}}$   
 $\sqrt{6m^5 p} = \frac{m^2 \sqrt{6mp}}{p^6}$

**D**  $\frac{3(5-\sqrt{2})}{5+\sqrt{2}(5-\sqrt{2})}$   $\frac{\sqrt{3}(5+\sqrt{6})}{(\sqrt{5}-\sqrt{6})(5+\sqrt{6})}$   
 $\frac{15-3\sqrt{2}}{25-5\sqrt{2}+5\sqrt{2}-2}$   $\frac{\sqrt{15}+\sqrt{18}}{5+\sqrt{30}-\sqrt{30}-6}$   
 $\frac{15-3\sqrt{2}}{23}$   $\frac{-1}{-115-\sqrt{18}}$

**E**  $(81^{\frac{3}{4}} x^3 y^{-\frac{12}{8}})^{\frac{5}{2}}$   $(4x^4 y^6)^{\frac{1}{2}} (4x^2 y^4)^{\frac{1}{2}}$   
 $81^{\frac{3}{4}} x^3 y^{-\frac{12}{8}} \cdot \frac{27x^3}{y^{\frac{3}{2}}}$   $4^{\frac{1}{2}} x^2 y^3 \cdot 4^{\frac{1}{2}} x y^2$   
 $(x^{\frac{2}{3}} \cdot y^{-\frac{1}{2}} \cdot x^{\frac{5}{6}})^6$   $\frac{4x^3 y^3}{y^2} = 4x^3 y$   
 $\frac{x^9}{y^3}$

**F** Solve check for extraneous  
 $(\sqrt{11x+15})^2 = (x+3)^2$   
 $11x+15 = x^2+6x+9$   
 $-11x-15 = -11x-15-6$   
 $0 = x^2 - 5x - 6 - 6 - 11 - 5$   
 $(x-6)(x+1)$   
 $x=6$   $x=-1$

**G** Solve graph solution set on the number line  
 $\sqrt{2x-5} + 2 > 5$  otherwise  
 $\sqrt{2x-5} > 3$   
 $2x-5 > 9$   
 $+5 +5$   
 $2x > 14$   
 $\frac{2x}{2} > \frac{14}{2}$   
 $x > 7$

**H**  $2 + \sqrt{3x-1} \leq 5$   
 $\sqrt{3x-1} \leq 3$   
 $3x-1 \leq 9$   
 $3x \leq 10$   
 $x \leq \frac{10}{3}$   
 $\frac{1}{3} \leq x \leq 3\frac{1}{3}$