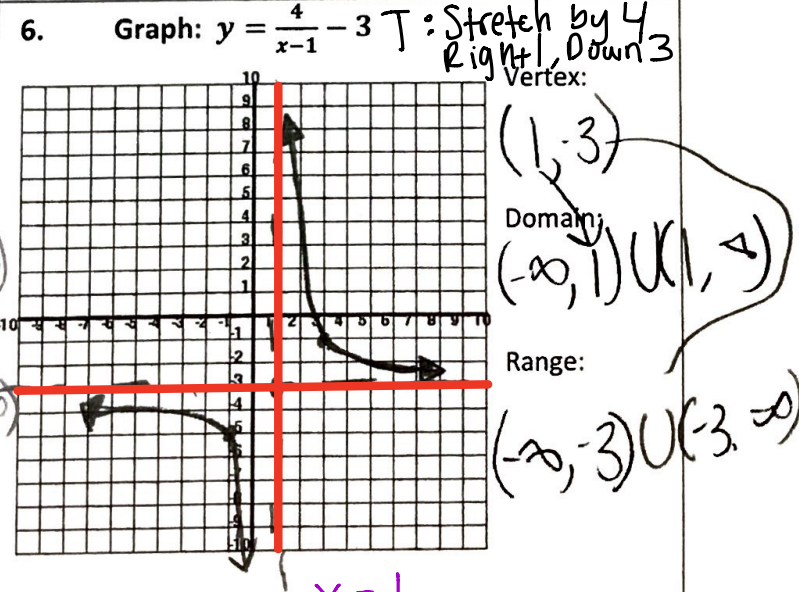
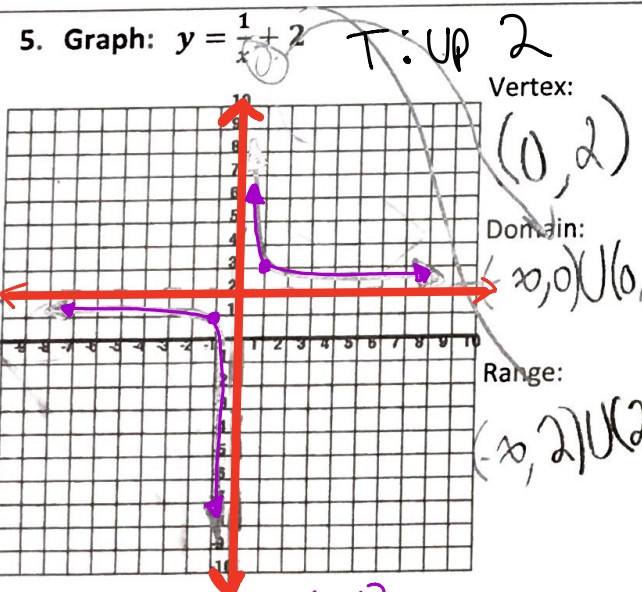
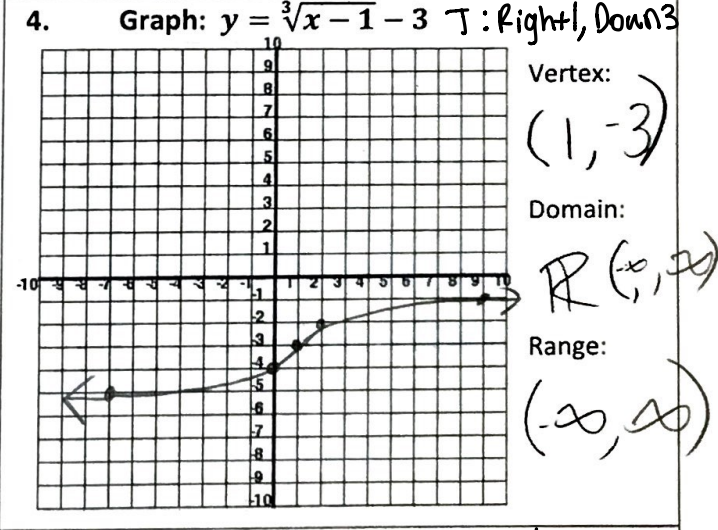
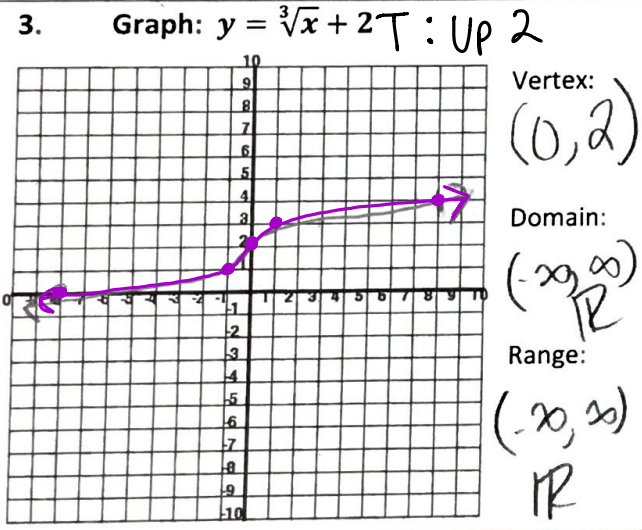
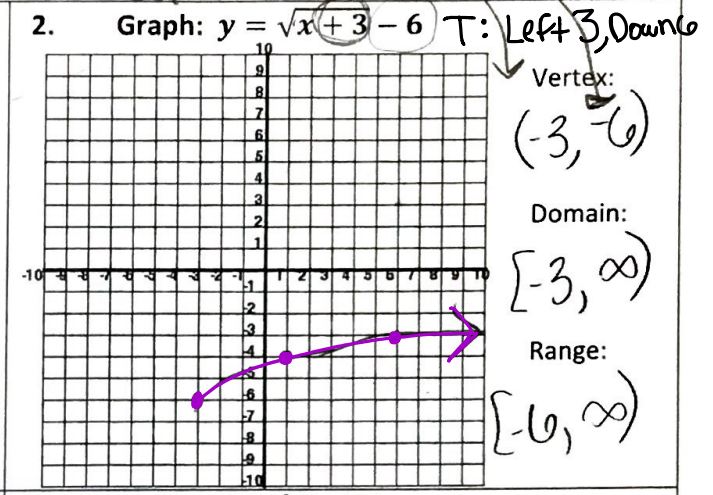
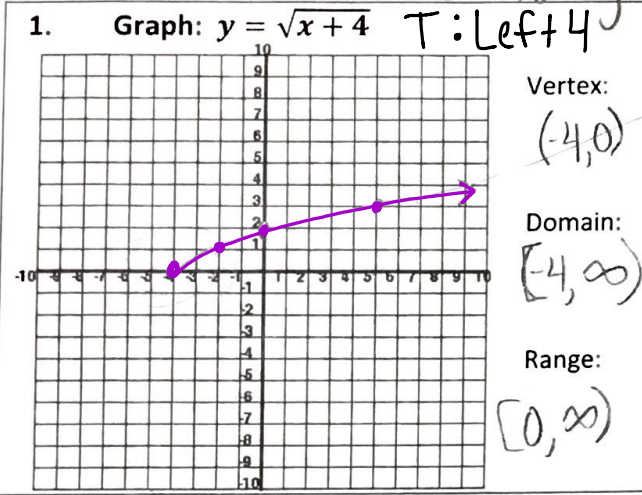


I. Graph each of the following:

Go to $y =$ in calc



Vertical asymptote: $x=0$
Horizontal asymptote: $y=2$

Vertical asymptote: $x=1$
Horizontal asymptote: $y=-3$

D.I.N.E. Denominator Index Numerator Exponent

$$5 \cdot x^{3/2}$$

$$\frac{1}{125}$$

II. Write the equivalent expression for each:

| | | | | | |
|---------------------------------|--|------------------------------------|-----------------------------------|-------------------------------------|--|
| 1. $x^{2/5}$ $\sqrt[5]{x^2}$ | 2. $5x^{3/2}$ $5 \cdot \sqrt[2]{x^3}$ | 3. $25^{-3/2}$ $\frac{1}{25^3}$ | 4. $(\sqrt[3]{x})^7$ $x^{7/3}$ | 5. $\sqrt[5]{5x^4}$ $(5x)^{4/5}$ | 6. $6^{\sqrt[3]{x^3}}$ $6 \cdot x^{3/5} = 6x^{3/5}$ |
|---------------------------------|--|------------------------------------|-----------------------------------|-------------------------------------|--|

III. Solve each of the following square root equations:

| | | |
|---|--|--|
| 1. $(\sqrt{x})^2 = (10)^2$ $x = 100$ $x = 100$ | 2. $(\sqrt{3x+1})^2 = (2)^2$ $3x+1 = 4$ $3x = 3$ $x = 1$ $x = 1$ | 3. $(\sqrt{2x-6})^2 = (\sqrt{x+5})^2$ $2x-6 = x+5$ $-x-6 = 5$ $-x = 11$ $x = 11$ $x = 11$ |
| 4. $5\sqrt{x} = 45$ $\sqrt{x} = 9$ $x = 81$ $x = 81$ | 5. $\sqrt{x} + 4 = 6$ $\sqrt{x} = 2$ $x = 4$ $x = 4$ | 6. $-4\sqrt{5x} + 1 = -7$ $-4\sqrt{5x} = -8$ $\sqrt{5x} = 2$ $5x = 4$ $x = 4/5$ $x = 4/5$ |

IV. Solve each of the following rational equations:

| | |
|---|--|
| 7. $\frac{3}{3} \cdot \frac{x+5}{2} = \frac{x}{3} \cdot \frac{2}{2}$ $3x+15 = 2x$ $15 = -x$ $x = -15$ $x = -15$ | 8. $\frac{(x-5)}{(x-5)} \cdot \frac{1}{3} = \frac{3}{x-5} \cdot \frac{3}{3}$ $\frac{x-5}{(x-5)(3)} = \frac{9}{(x-5)(3)}$ $x-5 = 9$ $x = 14$ $x = 14$ |
| 9. $\frac{3}{3} \cdot \frac{x+5}{2} - \frac{x}{3} \cdot \frac{2}{2} = \frac{4}{1} \cdot \frac{6}{6}$ $\frac{3x+15}{6} - \frac{2x}{6} = \frac{24}{6}$ $3x+15-2x = 24$ $x+15 = 24$ $x = 9$ $x = 9$ | 10. $\frac{(x+1)^3}{(x+1)^x} + \frac{2x}{x+1} = \frac{2(x)(x+1)}{1}$ $3x+3+2x = 2x^2+2x$ $3x+3 = 2x^2$ $x+3 = 0$ $x = -3$ $x = -3$ |

IV. Solve each variation problem:

| | |
|--|---|
| 11. Your distance from lightning varies directly with the time it takes you to hear thunder. If you hear thunder 10 sec. after you hear lightning, you are about 2 miles from the lightning. About how many seconds would it take for thunder to travel a distance of 4 miles? $d = kt$ $2 = \frac{k \cdot 10}{10}$ $k = .2$ $4 = .2t$ $t = 20$ 20 seconds | 12. The drama club is planning a bus trip to NYC. The cost per person varies inversely as the number of people going on the trip. It will cost \$30 per person if 44 people go on the bus. How much will it cost per person if 60 people go on the bus? $y = \frac{k}{x}$ $C = \frac{k}{p}$ $30 = \frac{k}{44}$ $1320 = k$ $C = \frac{1320}{60}$ $C = 22$ |
|--|---|