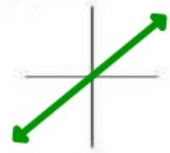
Name: _____
Period: _____

No Calculators

Parent Graphs

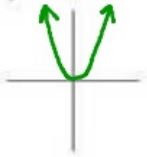
Sketch each of the parent graphs

a) $y = x$



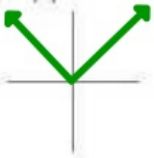
D: $\mathbb{R}$
R: $\mathbb{R}$

b) $y = x^2$



D: $\mathbb{R}$
R: $y \geq 0$

c) $y = |x|$

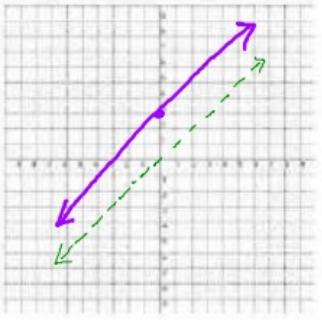


D: $\mathbb{R}$
R: $y \geq 0$

List the transformations and sketch each graph. Determine the domain and range. Draw the parent function with dotted lines on each graph.

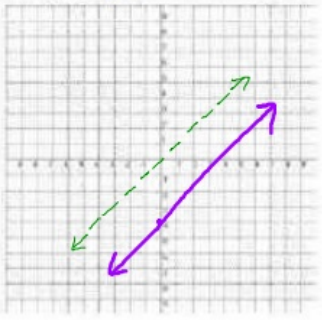
1. $y = x + 3$

Parent: $y = x$
Vertical Shift: 3 U D
Domain: $\mathbb{R}$
Range: $\mathbb{R}$



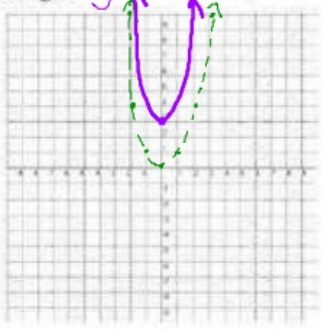
2. $y = x - 4$

Parent: $y = x$
Vertical Shift: 4 U D
Domain: $\mathbb{R}$
Range: $\mathbb{R}$



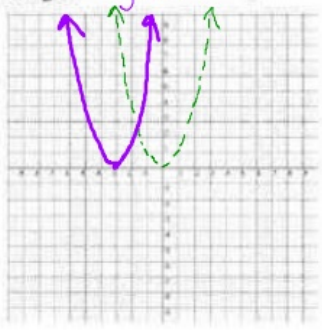
3. $y = x^2 + 3$

Parent: $y = x^2$
Horizontal Shift: 0 L R
Vertical Shift: 3 U D
Domain: $\mathbb{R}$
Range: $y \geq 3$



4. $y = (x+3)^2$

Parent: $y = x^2$
Horizontal Shift: 3 L R
Vertical Shift: 0 U D
Domain: $\mathbb{R}$
Range: $y \geq 0$



5. $y=(x+3)^2-1$

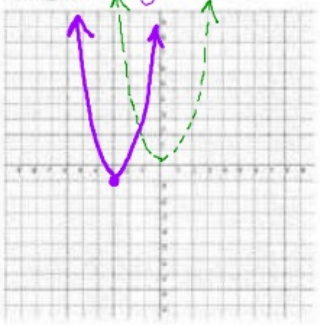
Parent: $y=x^2$

Horizontal Shift: 3 (L) R

Vertical Shift: 1 U (D)

Domain: R

Range: $y\geq -1$



6. $y=(x-2)^2-5$

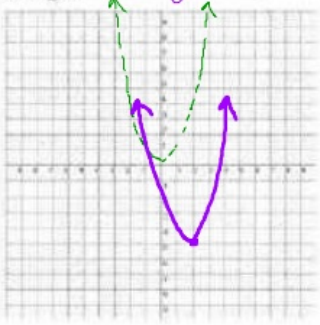
Parent: $y=x^2$

Horizontal Shift: 2 L (R)

Vertical Shift: 5 U (D)

Domain: R

Range: $y\geq -5$



7. $y=|x|+2$

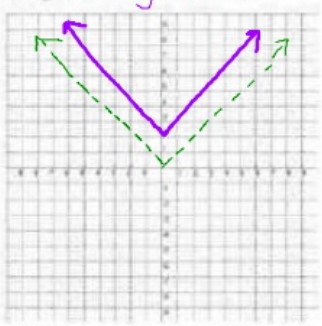
Parent: $y=|x|$

Horizontal Shift: 0 L R

Vertical Shift: 2 (U) D

Domain: R

Range: $y\geq 2$



8. $y=|x+1|$

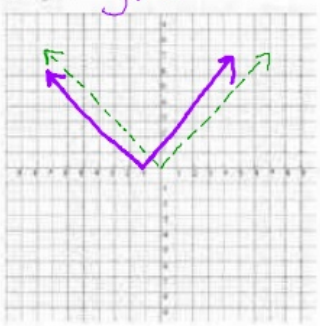
Parent: $y=|x|$

Horizontal Shift: 1 (L) R

Vertical Shift: 0 U D

Domain: R

Range: $y\geq 0$



9. $y=|x+2|-3$

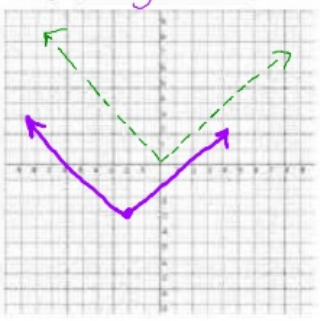
Parent: $y=|x|$

Horizontal Shift: 2 (L) R

Vertical Shift: 3 U (D)

Domain: R

Range: $y\geq -3$



10. $y=|x-4|-1$

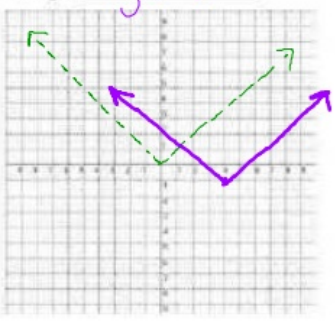
Parent: $y=|x|$

Horizontal Shift: 4 L (R)

Vertical Shift: 1 U (D)

Domain: R

Range: $y\geq -1$



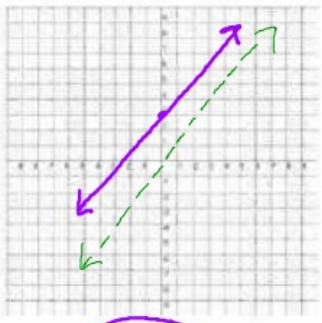
11. $y = x + 3$

Parent: $y = x$

Vertical Shift: 3 U D

Domain: $\mathbb{R}$

Range: $\mathbb{R}$



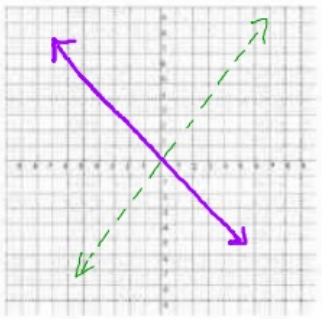
12. $y = -x$

Parent: $y = x$ — Reflection

Vertical Shift: 0 U D

Domain: $\mathbb{R}$

Range: $\mathbb{R}$



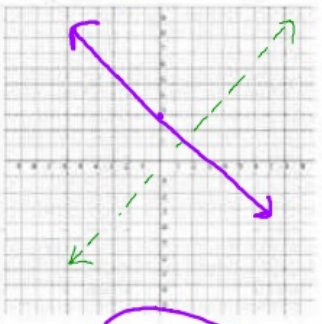
13. $y = -x + 3$

Parent: $y = x$ — Reflection

Vertical Shift: 3 U D

Domain: $\mathbb{R}$

Range: $\mathbb{R}$



14. $y = |x - 3|$

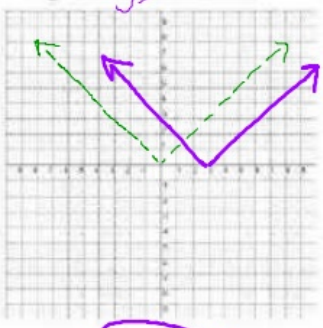
Parent: $y = |x|$

Horizontal Shift: 3 L R

Vertical Shift: 0 U D

Domain: $\mathbb{R}$

Range: $y \geq 0$



15. $y = -|x|$

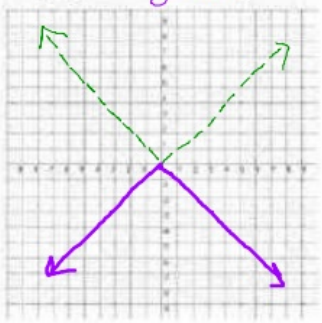
Parent: $y = |x|$ — Reflection

Horizontal Shift: 0 L R

Vertical Shift: 0 U D

Domain: $\mathbb{R}$

Range: $y \leq 0$



16. $y = -|x - 3|$

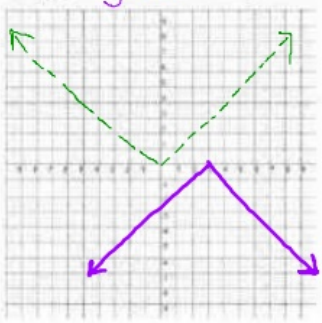
Parent: $y = |x|$ — Reflection

Horizontal Shift: 3 L R

Vertical Shift: 0 U D

Domain: $\mathbb{R}$

Range: $y \leq 0$



17. $y = x^2 - 1$

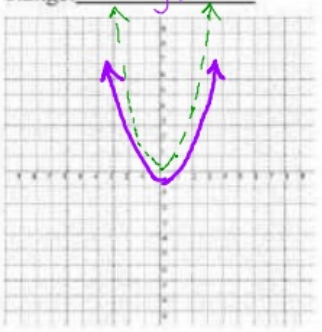
Parent: $y = x^2$

Horizontal Shift: 0 L R

Vertical Shift: 1 U (D)

Domain: R

Range: $y \geq -1$



18. $y = (x+2)^2 - 1$

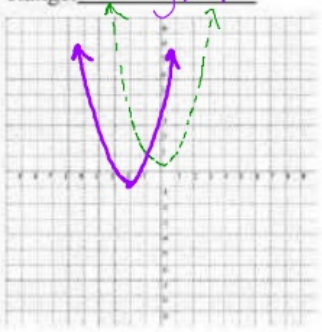
Parent: $y = x^2$

Horizontal Shift: 2 (L) R

Vertical Shift: 1 U (D)

Domain: R

Range: $y \geq -1$



19. $y = |x| - 4$

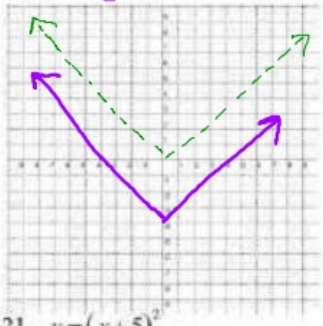
Parent: $y = |x|$

Horizontal Shift: 0 L R

Vertical Shift: 4 U (D)

Domain: R

Range: $y \geq -4$



20. $y = |x-2|$

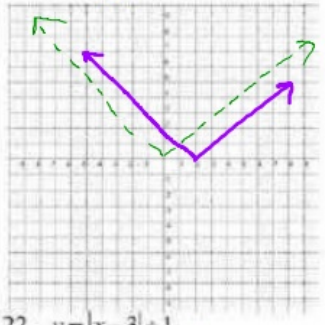
Parent: $y = |x|$

Horizontal Shift: 2 (L) R

Vertical Shift: 0 U D

Domain: R

Range: $y \geq 0$



21. $y = (x+5)^2$

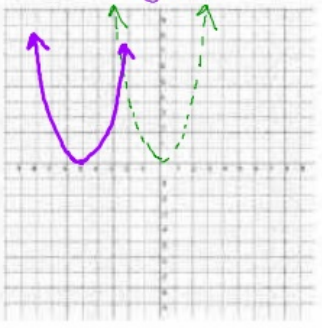
Parent: $y = x^2$

Horizontal Shift: 5 (L) R

Vertical Shift: 0 U D

Domain: R

Range: $y \geq 0$



22. $y = |x-3| + 1$

Parent: $y = |x|$

Horizontal Shift: 3 L (R)

Vertical Shift: 1 U D

Domain: R

Range: $y \geq 1$