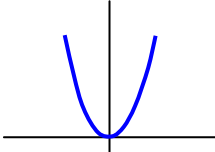
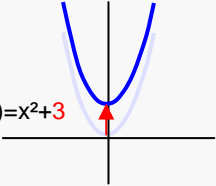
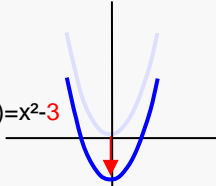
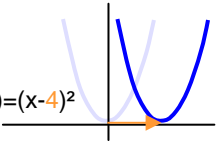
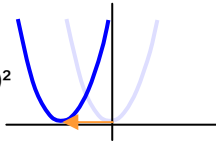
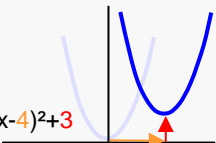
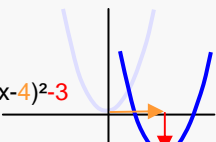
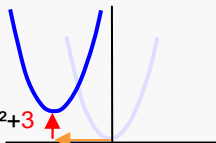
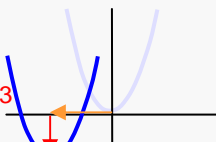
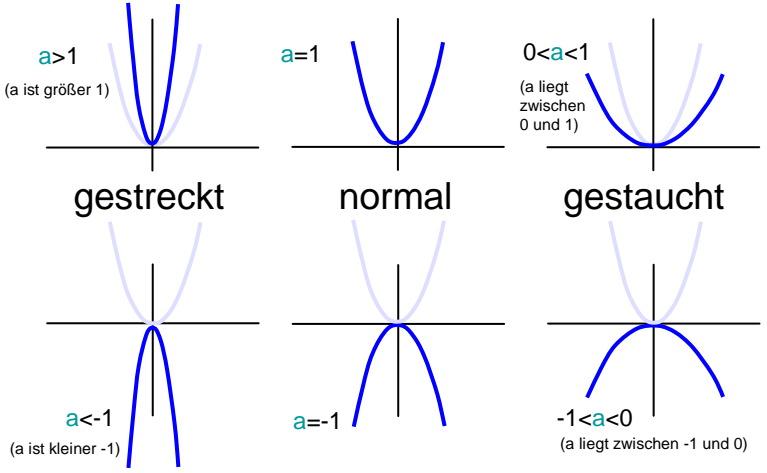
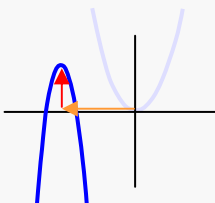


Parabeln für Anfänger

$f(x)=x^2$ Nicht verschobene Normalparabel Scheitelpunkt $S(0 0)$			
$f(x)=x^2+c$ Verschiebung nach oben/unten Scheitelpunkt $S(0 c)$	$c > 0$ z.B. $f(x)=x^2+3$ 	$c < 0$ z.B. $f(x)=x^2-3$ 	
$f(x)=(x-b)^2$ Verschiebung nach rechts/links Scheitelpunkt $S(b 0)$	$b > 0$ z.B. $f(x)=(x-4)^2$ 	$b < 0$ z.B. $f(x)=(x+4)^2$ ergibt sich aus $(x-(-4))^2$ 	
$f(x)=(x-b)^2+c$ Kombination aus allen Verschiebungen Scheitelpunkt $S(b c)$	$c > 0; b > 0$ z.B. $f(x)=(x-4)^2+3$  $c < 0; b > 0$ z.B. $f(x)=(x-4)^2-3$ 	$c > 0; b < 0$ z.B. $f(x)=(x+4)^2+3$  $c < 0; b < 0$ z.B. $f(x)=(x+4)^2-3$ 	
$f(x)=ax^2$ Streckung/Stauchung/ Umklappen der Parabel Scheitelpunkt $S(0 0)$			
$f(x)=a(x-b)^2+c$ Alles vorherige kombiniert Scheitelpunkt $S(b c)$	 $c > 0; b < 0; a < -1$ z.B. $f(x)=-2(x+4)^2+3$		

Aufgaben

Bestimme den Scheitelpunkt (also die Verschiebung) und mache eine grobe Skizze!

1.) x^2-3 2) x^2+2 3) $(x-3)^2$ 4) $(x+4)^2$ 5) $(x-2)^2+1$ 6) $(x+1)^2-5$

7) $-2x^2$ 8) $0,1x^2$ 9) $3x^2-3$ 10) $0,2(x-3)^2$ 11) $-x^2-1$ 12) $-(x-1)^2-1$

13) $\frac{1}{2}(x+2)^2-5$ 14) $-10(x-2)^2+3$