# Transformations of curves

## Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

## What you will practise

- Describe transformed parabolas, hyperbolas, circles and exponentials.
- Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

In $y=f(x-h)+k$, the original graph moves $h$ units right and $k$ units up. A multiplier outside $f$ changes vertical scale; a negative one reflects in the x-axis.

Identify features analytically and test them with graphing software. For circles use $(x-h)^2+(y-k)^2=r^2$. For reciprocal curves track both vertical and horizontal asymptotes.

## Worked example

Describe $y=2(x-3)^2-4$ from $y=x^2$.

Shift 3 right, stretch vertically by 2, shift 4 down.

The vertex is (3, -4).

Answer: Vertex (3, -4), opens upward

## Try it yourself

Name: _____ Date: _____

1. State vertex of $y=-(x+2)^2+5$.

2. State asymptotes of $y=1/(x-4)+3$.

## Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. (-2,5)

Inside+2 shifts left 2.

2. x=4, y=3

Shift the basic reciprocal graph.

Curriculum reference: VC2M10AA05; VC2M10AA10

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