Pre-Calculus Summer Work
Larson Pre- Calculus Chapter 1

Domain of Functions
Video to help: https://www.youtube.com/watch?v=ZxrMrWy1drc

Find the Domain of the following functions:

1. f(x) = $\frac{2+x}{x-3}$

2. $f(x)=\sqrt{x-3}$

Parent Graphs and Transformations

Video to help: https://www.youtube.com/watch?v=69-1p1iowXk

Graph the 4 parent graphs AND the transformations at the end of the video.

Parent Graphs	Transformation
1. $y=x^2$	$y=(x+3)^2-2$
2. $y=\lvert x\rvert$	$y=-2\lvert x-1\rvert$
3. $y=\frac{1}{x}$	$y=\frac{3}{x+2}$
4. $\sqrt{x}$	$y=\frac{1}{2}\sqrt{x+3}$

Combinations of Functions
Video to help: https://www.youtube.com/watch?v=I8Iul0Om-t4

If $f(x)=x^2+1$ and $g(x)=x-10$, find

a) $f+g)(x)$

b) (f-g)(x)

c) (fg)(x)

d) (f/g)(x)

Now find the domain of all 4 new functions.

The Inverse of a Function
Video to help: https://www.youtube.com/watch?v=gXIRspXL6oc

Find the inverse of the function $f(x)=x^3+2.$
Graph both the function and its inverse.

Factoring
Video to help: https://www.youtube.com/watch?v=HvBiJ9W00Z4

Factor:

x^2-9

$x^2-2x-24$

$3x^2+11x+6$

The Quadratic Formula

Video to help: https://www.youtube.com/watch?v=-gwz6d9NYz0

Solve using the quadratic formula $2x^2+5x=4$

Composition of functions
Video to help
https://www.youtube.com/watch?v=T6-Zdr5w_bE

Practice Problems
Given $f(x) = 2x^2 - 4$ and $g(x) = x - 3$, find

a.) $f(g(x))$

b.) $(g \circ f)(x)$

c.) $g(f(-3))$

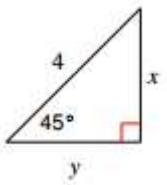
Answers

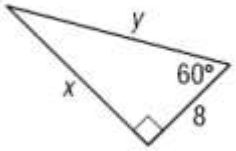
a.) $2x^2 - 12x + 14$

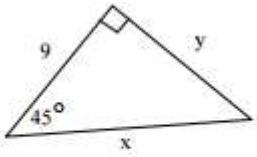
b.) $2x^2 - 7$

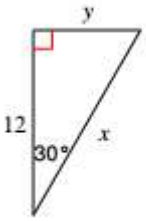
c.) 11

Special Right Triangles, 45-45-90 and 30-60 90
Video to help
https://www.youtube.com/watch?v=7B1yrRLSRT8
Find the missing sides in each of the following triangles









Answers

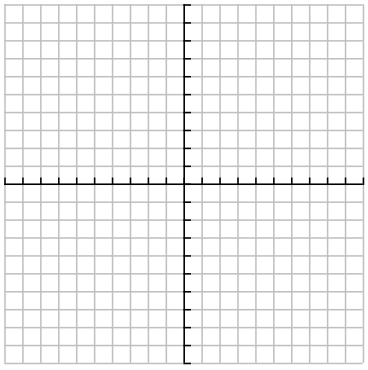
$x = 2\sqrt{2}$ $y = 2\sqrt{2}$

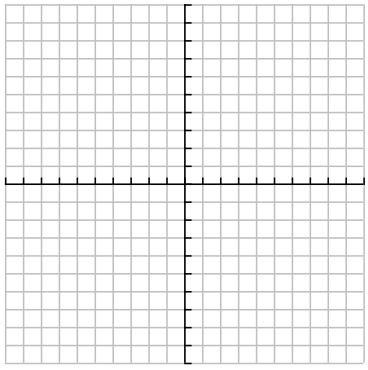
$x = 8\sqrt{3}$ $y = 16$

$x = 9\sqrt{2}$ $y = 9$

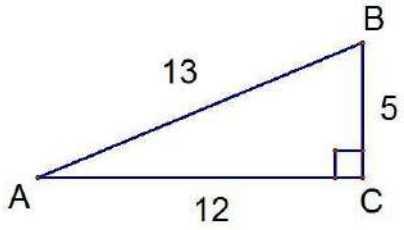
$x = 8\sqrt{3}$ $y = 4\sqrt{3}$

Graph a line from slope intercept form.
Video to help
https://www.youtube.com/watch?v=WQyvskZSCJg
Graph $y = \frac{2}{3}x - 1$ $y = -3x + 4$





Right Triangle Trig – SOHCAHTOA
Video to help
https://www.youtube.com/watch?v=VRz2d5yedsg



Given ΔABC
Find $\sin A$ $\sin B$
Find $\cos A$ $\cos B$
Find $\tan A$ $\tan B$
Answers
$\sin A = \frac{5}{13}$ $\sin B = \frac{12}{13}$
$\cos A = \frac{12}{13}$ $\cos B = \frac{5}{13}$
$\tan A = \frac{5}{12}$ $\tan B = \frac{12}{5}$