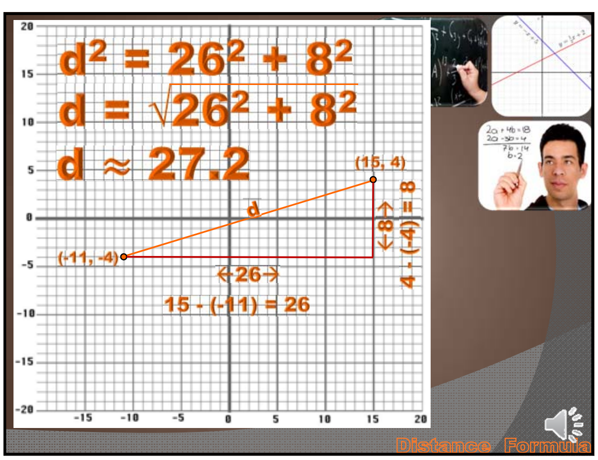
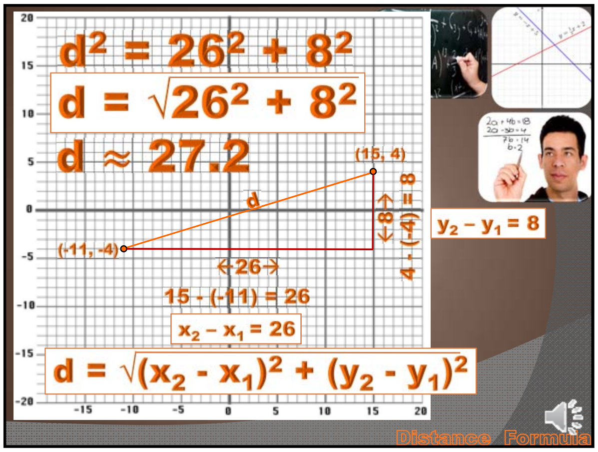
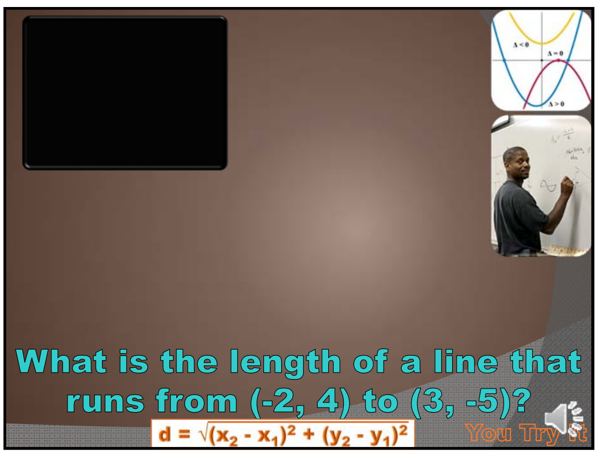
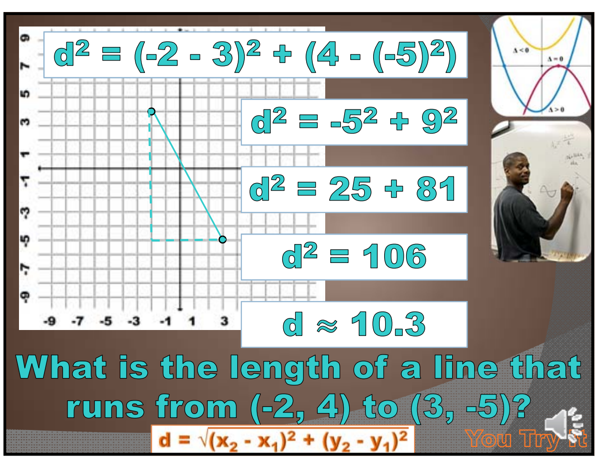

Algebra 1
Distance and Midpoint Formulas
www.MasterMath.info

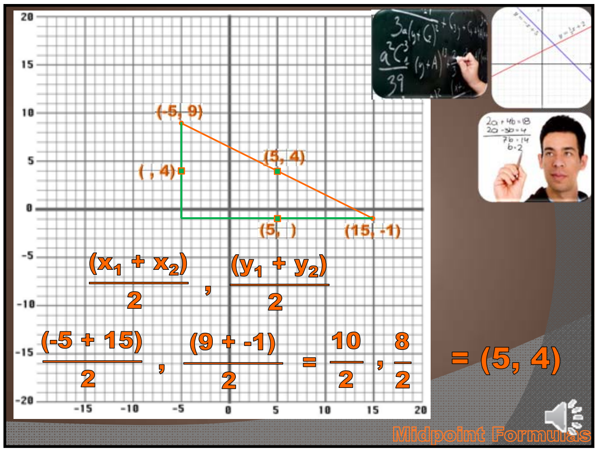

WELCOME
ADRIAN, TEXAS
ROUTE US 66
MIDPOINT
LOS ANGELES 1139 MILES
CHICAGO 1139 MILES
Distance Formula
Midpoint Formula
Overview

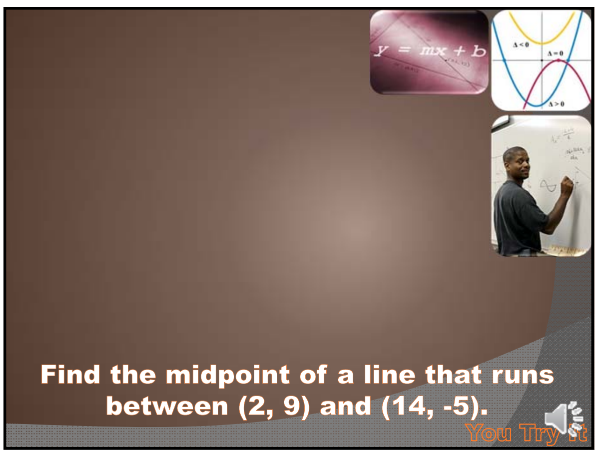

d² = 26² + 8²
d = √26² + 8²
d ≈ 27.2
(15, 4)
(-11, -4)
d
26
15 - (-11) = 26
8
4 - (-4) = 8
Distance Formula

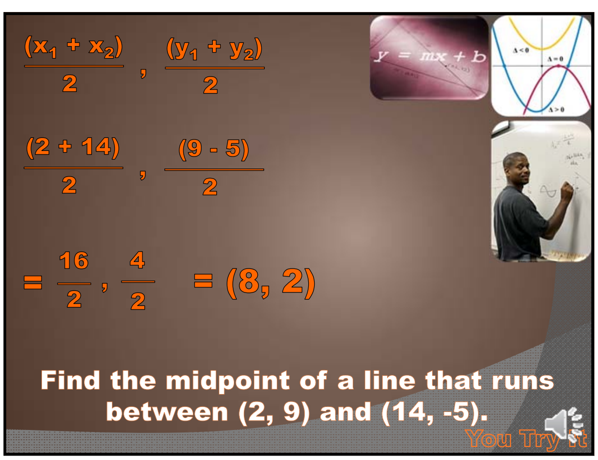

$d^2 = 26^2 + 8^2$
$d = \sqrt{26^2 + 8^2}$
$d \approx 27.2$
(15, 4)
d
(-11, -4)
26
15 - (-11) = 26
$x_2 - x_1 = 26$
8
4 - (-4) = 8
$y_2 - y_1 = 8$
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Distance Formula

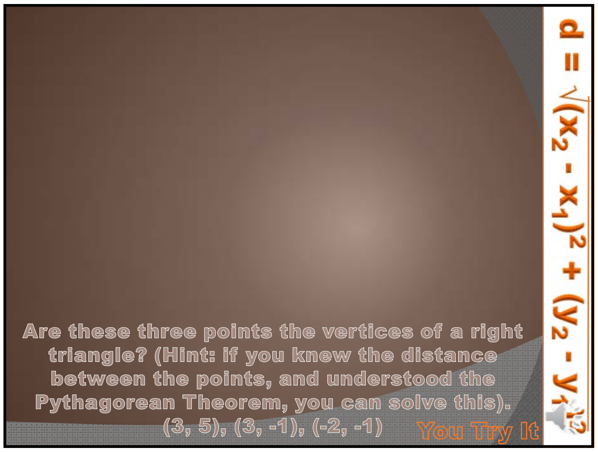

What is the length of a line that runs from (-2, 4) to (3, -5)?
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
You Try It

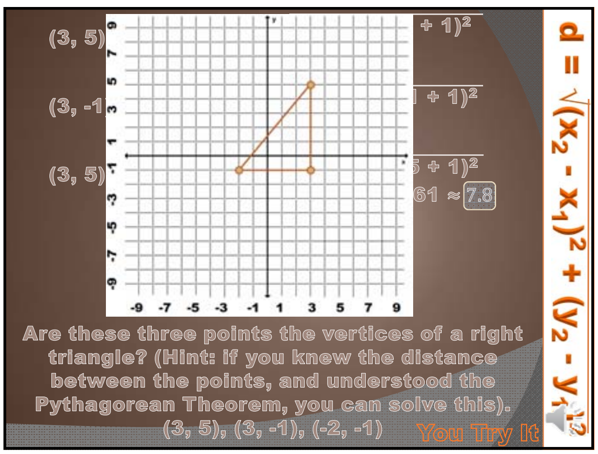

$d^2 = (-2 - 3)^2 + (4 - (-5)^2)$
$d^2 = -5^2 + 9^2$
$d^2 = 25 + 81$
$d^2 = 106$
$d \approx 10.3$
What is the length of a line that runs from (-2, 4) to (3, -5)?
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
You Try It

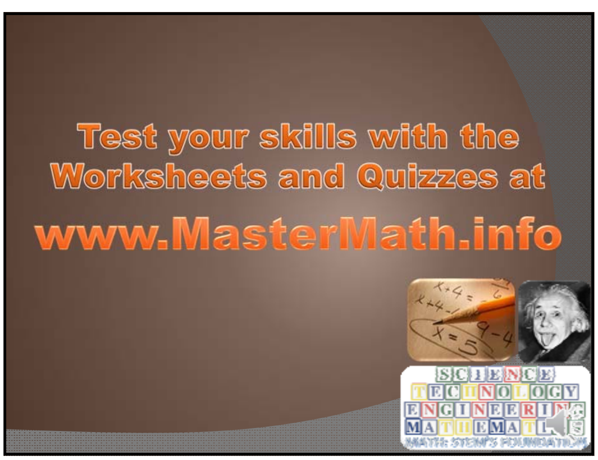

(-5, 9)
(, 4)
(5, 4)
(5,)
(15, -1)
(x1 + x2) / 2 , (y1 + y2) / 2
(-5 + 15) / 2 , (9 + -1) / 2 = 10/2 , 8/2 = (5, 4)
Midpoint Formulas


y = mx + b
Find the midpoint of a line that runs between (2, 9) and (14, -5).
You Try It


(x1 + x2) / 2 , (y1 + y2) / 2
(2 + 14) / 2 , (9 - 5) / 2
= 16/2 , 4/2 = (8, 2)
y = mx + b
Find the midpoint of a line that runs between (2, 9) and (14, -5).
You Try It


$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Are these three points the vertices of a right triangle? (Hint: If you knew the distance between the points, and understood the Pythagorean Theorem, you can solve this).
(3, 5), (3, -1), (-2, -1)
You Try It


$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
(3, 5)
(3, -1
(3, 5)
+ 1)²
+ 1)²
5 + 1)²
61 ≈ 7.8
-9 -7 -5 -3 -1 1 3 5 7 9
Are these three points the vertices of a right triangle? (Hint: If you knew the distance between the points, and understood the Pythagorean Theorem, you can solve this).
(3, 5), (3, -1), (-2, -1)
You Try It


Test your skills with the Worksheets and Quizzes at
www.MasterMath.info
SCIENCE
TECHNOLOGY
ENGINEERING
MATHEMATICS
MATH: STEM'S FOUNDATION