

Review Starter

RS-1 and RS-2

$f(-4) = -3.7$
 $f(0) = -1$
 $f(6) = 3$
 $f(1) = 3$

Mar 7-2:22 PM

X if $0 \leq x$
 $x \geq 0$

Mar 30-11:50 AM

Solve the inequality

1. find x-int
2. draw a # line
3. make a sign chart
4. write answer interval notation

write an equation from graph.

1. parent function
2. transformations right, left, up, down, reflect

Mar 30-11:53 AM

$3x + 4 \geq x^2$
 $0 \geq x^2 - 3x - 4$
 $x^2 - 3x - 4 \leq 0$
 neg

Mar 30-12:02 PM

9.5/9.6 questions

21-26 $A = \pi \theta r^2$
 $\frac{1}{2} \pi \cdot \frac{360}{180} r^2$

$A = \frac{1}{2} \theta \cdot r^2$

Mar 30-12:06 PM

⑮ $\theta = \frac{\pi}{3}$ $r = 8$

$A = \left(\frac{1}{2}\right) \left(\frac{1}{3}\right) (8^2)$

$\frac{32\pi}{3} \text{ ft}^2$

Mar 30-12:17 PM

⑤ Arc length
 $S = \theta \cdot r$
 $\frac{\pi}{3} \cdot 8$ $\frac{8\pi}{3} \text{ ft}$
 $(\frac{1}{3}) \cdot 8$

① $\frac{2\pi \cdot 3}{3}$
 $\frac{6\pi}{3}$
 $2\pi \text{ mm}$


Mar 30-12:21 PM

① $S = \theta r$
 $\theta = \frac{120}{180}$ $r = 4$
 $\frac{2\pi \cdot 4}{3}$ $\frac{8\pi}{3} \text{ cm}$
 8.378 cm

Mar 30-12:25 PM

② $A = \frac{1}{2} \theta r^2$ $(\frac{1}{2})(\frac{1}{3})(10^2)$
 $\theta = \frac{60}{180}$ $r = 10$
 $\frac{1}{3}\pi$ $\frac{50}{3}\pi \text{ cm}^2$

Mar 30-12:27 PM

Difference of Squares
 Subtracting 2 perfect squares
 $X^2 - 4$
 $(X+2)(X-2)$ 

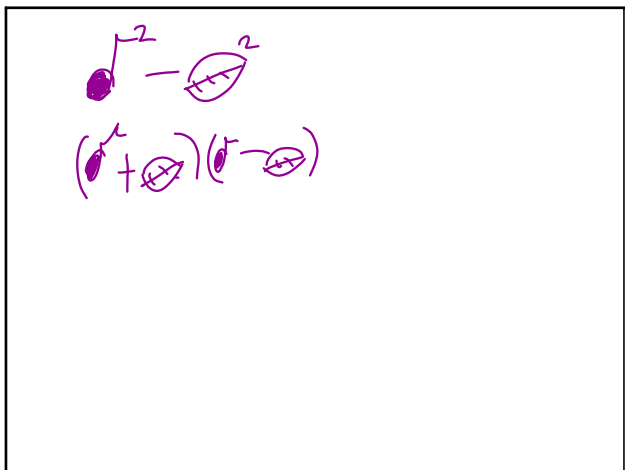
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$\sqrt{9x^2 - 25}$
 $3x \quad 5$
 $(3x+5)(3x-5)$

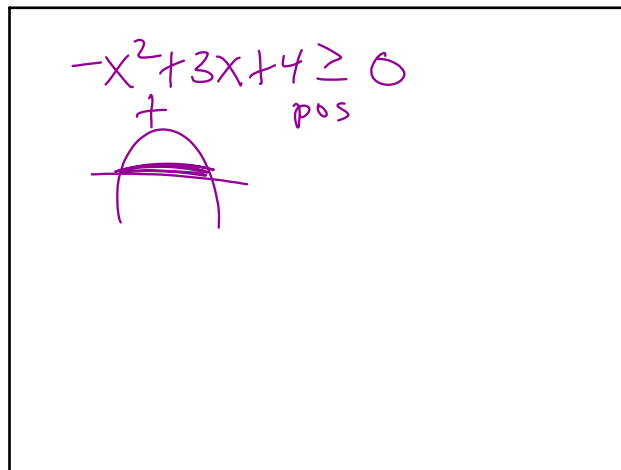
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$w^2 - b^2$
 $(w+b)(w-b)$

Mar 30-12:13 PM



Mar 30-12:14 PM



Mar 30-12:03 PM

9.7 Equation of a Circle

Equation of Circle: Center (h, k)

Centered at the Origin: $(0,0)$	Not Centered at the Origin: (h, k)
$x^2 + y^2 = r^2$	$(x-h)^2 + (y-k)^2 = r^2$

Example 1: Find center and radius given the following equations

a. $x^2 + y^2 = 49$
Center: $(0,0)$
radius: 7

b. $(x-3)^2 + y^2 = 64$
center: $(3,0)$ radius: 8

c. $(x+2)^2 + (y-1)^2 = 1$
center: $(-2,1)$
radius: 1

d. $x^2 + (y+5)^2 = 6$
center: $(0,-5)$ $r = \sqrt{6}$

Mar 7-2:22 PM

Example 2: Write the equation for the circle given the following:

a. center at origin, radius 8

b. center $(-1, 5)$, radius 4

$h=0$
 $k=0$
 $r=8$

$h=-1$
 $k=5$
 $r=4$

$(x-0)^2 + (y-0)^2 = 8^2$
 $x^2 + y^2 = 64$

$(x+1)^2 + (y-5)^2 = 16$

Mar 27-3:58 PM

c. a circle whose diameter has endpoints $(-1, 5)$ and $(5, -3)$

center radius midpoint

$(\frac{-1+5}{2}, \frac{5-3}{2})$
 $(2, 1)$

Mar 27-3:57 PM

distance between 2 points $(2,1)$ $(5,-3)$

$$\sqrt{(y_2 - y_1)^2 + (x_2 - x_1)^2}$$

$$\sqrt{(-3-1)^2 + (5-2)^2}$$

$$\sqrt{(4)^2 + (3)^2} \quad r=5$$

$$\sqrt{16+9}$$

$$\sqrt{25}$$

Mar 30-12:40 PM

center (2,1) r=5

$$(x-2)^2 + (y-1)^2 = 25$$

Mar 30-12:42 PM

midpoint formula: $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

distance formula: $d = \sqrt{(y_2-y_1)^2 + (x_2-x_1)^2}$

Mar 30-12:44 PM

d. center at origin and contains the point (3, 5)

distance formula to find radius

(0,0) (3,5)

Mar 27-3:57 PM

Example 3 Find center and radius of circle given the equation

a. $x^2 + y^2 - 6x + 2y - 6 = 0$ b. ~~$x^2 + y^2 + 8x + 7 = 0$~~

$$x^2 - 6x + 9 + y^2 + 2y + 1 = 6 + 9 + 1$$

$$(x-3)^2 + (y+1)^2 = 16$$

c. ~~$2x^2 + 2y^2 + 6x - 8y + 12 = 0$~~

center: (3,-1)
radius: 4

Mar 7-2:24 PM

22 $x^2 + y^2 - 2x - 4y - 4 = 0$

$$x^2 - 2x + 1 + y^2 - 4y + 4 = 4 + 1 + 4$$

$$(x-1)^2 + (y-2)^2 = 9$$

center: (1,2)
r: 3

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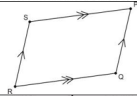
9.8 Proving Geometrical Theorems Algebraically

Trapezoid: A quadrilateral with only one set of parallel sides.

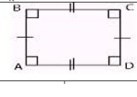
Isosceles Trapezoid: A trapezoid with congruent legs and congruent base angles. The diagonals of an isosceles trapezoid are congruent.

isosceles trapezoid

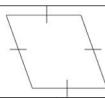
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<p>Parallelogram: A quadrilateral with opposite sides parallel and congruent. The diagonals of a parallelogram bisect each other.</p>	

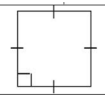
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<p>Rectangle: A special parallelogram with four right angles. The diagonals of a rectangle are congruent.</p>	

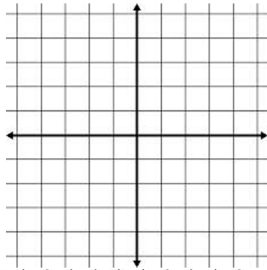
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<p>Rhombus: A special parallelogram with four congruent sides. The diagonals bisect each other and are perpendicular to one another.</p>	

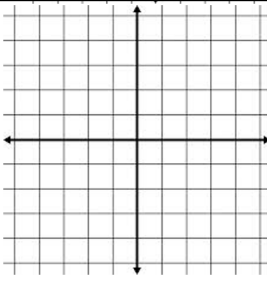
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<p>Square: A special rectangle and rhombus with four congruent sides. The diagonals are congruent, bisect each other, and are perpendicular to each other.</p>	

Mar 7-2:25 PM

<p>Example 1: Prove that quadrilateral EFGH is an isosceles trapezoid given the following vertices: E(-3,2), F(2, 2), G(3, -2), H(-4, -2)</p>	

Mar 7-2:26 PM

<p>Example 2: Given a circle with center (-2, 3) determine whether or not the points (-4, -1) and (3, 5) are on the same circle.</p>	

Mar 7-2:26 PM