

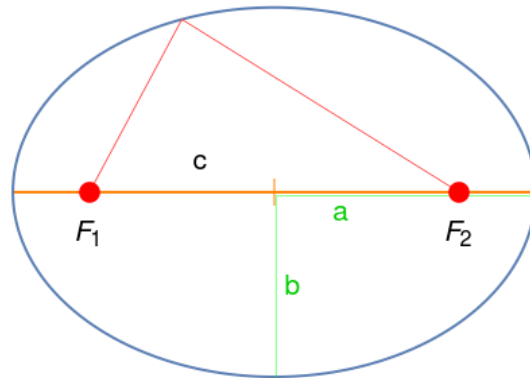


# Ellipse

Name \_\_\_\_\_ Date \_\_\_\_\_

Calculate parameters of an ellipse:

- $a$  — semi-major axis
- $b$  — semi-minor axis
- semi-latus rectum  $p = \frac{b^2}{a} = a(1 - e^2)$
- focal distance  $c = \sqrt{a^2 - b^2}$
- eccentricity  $e = \frac{c}{a} = \sqrt{1 - \frac{b^2}{a^2}}$
- area  $S = \pi ab$



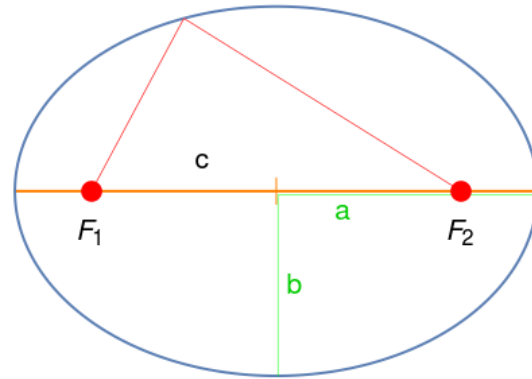
No.	$a$	$b$	$c$	$e$	$p$	$S$
1	$5\sqrt{2}$		$4\sqrt{2}$			
2			$\sqrt{2}$		$\frac{3}{\sqrt{5}}$	
3			$\sqrt{5}$			$\pi\sqrt{14}$
4		$2\sqrt{2}$			$\frac{4}{\sqrt{2}}$	
5	$3\sqrt{2}$				$\frac{2}{3\sqrt{2}}$	
6			$\sqrt{22}$	$\frac{\sqrt{22}}{3\sqrt{3}}$		
7		$\sqrt{5}$			$\frac{5}{2\sqrt{5}}$	
8			$\sqrt{3}$		$\frac{5}{2\sqrt{2}}$	



# Answers

Calculate parameters of an ellipse:

- $a$  — semi-major axis
- $b$  — semi-minor axis
- semi-latus rectum  $p = \frac{b^2}{a} = a(1 - e^2)$
- focal distance  $c = \sqrt{a^2 - b^2}$
- eccentricity  $e = \frac{c}{a} = \sqrt{1 - \frac{b^2}{a^2}}$
- area  $S = \pi ab$



No.	$a$	$b$	$c$	$e$	$p$	$S$
1	$5\sqrt{2}$	$3\sqrt{2}$	$4\sqrt{2}$	$\frac{4}{5}$	$\frac{18}{5\sqrt{2}}$	$30\pi$
2	$\sqrt{5}$	$\sqrt{3}$	$\sqrt{2}$	$\frac{\sqrt{2}}{\sqrt{5}}$	$\frac{3}{\sqrt{5}}$	$\pi\sqrt{15}$
3	$\sqrt{7}$	$\sqrt{2}$	$\sqrt{5}$	$\frac{\sqrt{5}}{\sqrt{7}}$	$\frac{2}{\sqrt{7}}$	$\pi\sqrt{14}$
4	$2\sqrt{2}$	$2\sqrt{2}$	0	0	$\frac{4}{\sqrt{2}}$	$8\pi$
5	$3\sqrt{2}$	$\sqrt{2}$	4	$\frac{4}{3\sqrt{2}}$	$\frac{2}{3\sqrt{2}}$	$6\pi$
6	$3\sqrt{3}$	$\sqrt{5}$	$\sqrt{22}$	$\frac{\sqrt{22}}{3\sqrt{3}}$	$\frac{5}{3\sqrt{3}}$	$3\sqrt{15}\pi$
7	$2\sqrt{5}$	$\sqrt{5}$	$\sqrt{15}$	$\frac{\sqrt{3}}{2}$	$\frac{5}{2\sqrt{5}}$	$10\pi$
8	$2\sqrt{2}$	$\sqrt{5}$	$\sqrt{3}$	$\frac{\sqrt{3}}{2\sqrt{2}}$	$\frac{5}{2\sqrt{2}}$	$2\sqrt{10}\pi$