

Math Team

Meet 4 Events A and B Problems 1-2 Practice (2018-19 through 2019-20)

Event A

Problem #1 ("quickie"; 1 point)

Try to solve each problem within one minute.

1. Determine exactly the value of  $\frac{9^3}{3^9}$ . (MSHSML 2019-20 4A #1)

1. If  $p^2 = 2020 + q^2$  and  $p = 10 + q$ , compute  $p + q$ .  
(MSHSML 2018-19 4A #1)

Math Team

Meet 4 Events A and B Problems 1-2 Practice (2018-19 through 2019-20)

Event A

Problem #2 (“textbook”; 2 points)

Try to solve each problem within two minutes.

1. Determine exactly the solution to  $\frac{3x+2}{x+5} - \frac{8x+6}{3x+15} =$

1. (MSHSML 2019-20 4A #2)

1. If  $a$  and  $b$  are positive real numbers and  $\frac{a^2+b^2}{\frac{1}{a^2}+\frac{1}{b^2}} = 10$ ,

determine exactly the value of  $\frac{a^3+b^3}{\frac{1}{a^3}+\frac{1}{b^3}}$ . (MSHSML 2018-19 4A #2)

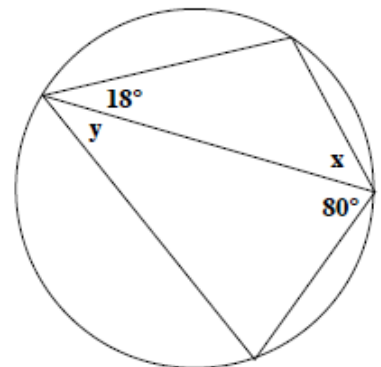
Event B

Problem #1 (“quickie”; 1 point)

Try to solve each problem within one minute.

1. A  $60^\circ$  sector of a circle has area  $24\pi$ . Determine exactly the radius of the circle. [calculator allowed] (MSHSML 2019-20 4B #1)

1. In the figure, a quadrilateral is inscribed in a circle. Calculate the sum of the measures of angles  $x$  and  $y$ . [calculator allowed] (MSHSML 2018-19 4B #1)



Event B

Problem #2 (“textbook”; 2 points)

Try to solve each problem within two minutes.

2. One circle has a circumference of 1 and a diameter whose length is  $a$ . Another circle has an area of 1 and a diameter whose length is  $\sqrt{b}$ . Determine exactly the value of  $\frac{a}{b}$ .

[calculator allowed] (MSHSML 2019-20 4B #2)

2. In the figure, a circle of radius 20 contains three points  $A$ ,  $B$ , and  $C$ . Two chords,  $\overline{AB}$  and  $\overline{AC}$ , are drawn. If the length of  $\widehat{BC}$  is  $\frac{5\pi}{3}$ , determine exactly the measure of  $\angle BAC$ .

[calculator allowed] (MSHSML 2018-19 4B #2)

