

Math Team
Meet 1 Events A and B Problems 3 2018-20 Practice

Event A

Problem #3 (“textbook with a twist”; 2 points)

Try to solve each problem within three minutes.

3. Express $0.20\overline{18}$ as a quotient of two relatively prime integers. (MSHSML 2019-20 1A #3)

3. Express $0.20\overline{19}$ as a quotient of two relatively prime integers. (MSHSML 2018-19 1A #3)

3. What is the base b for which $\underline{6} \underline{8}_b$ is 25% larger than $\underline{5} \underline{3}_b$? (Note that the percent is given in base 10.) (MSHSML 2017-18 1A #3)

3. If 48 and x have a lowest common multiple of 2640 and a greatest common factor of 12, determine the minimum possible value of x . (MSHSML 2016-17 1A #3)

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Event B

Problem #3 (“textbook with a twist”; 2 points)

Try to solve each problem within three minutes.

3. The interior angles of a convex polygon increase in the following linear progression: 100° , 108° , 116° , Determine the number of sides of the polygon. [calculator allowed] (MSHSML 2019-20 1B #3)

3. Determine exactly both real numbers x such that $\sqrt{x + 2}$, $\sqrt{3x - 2}$, and $\sqrt{6x - 5}$ are the side lengths of a right triangle. Express answers as quotients of relatively prime integers. [calculator allowed] (MSHSML 2018-19 1B #3)

3. In *Figure 3*, $\triangle ABC$ is an isosceles right triangle with hypotenuse \overline{AC} . $\overline{BD} \perp \overline{AF}$, $\overline{DE} \perp \overline{BC}$, and $m\angle ABD = 60^\circ$. If $AF = 5\sqrt{6}$, determine exactly the length of \overline{CE} .

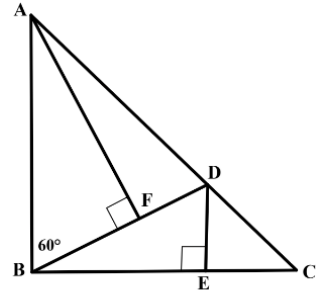


Figure 3

(MSHSML 2017-18 1B #3)

3. Given $\angle 1 + m\angle 2 + m\angle 3 + m\angle 4 = y$, as shown in *Figure 3*. Find the smallest possible angle y (in degrees) if x is an obtuse angle with an integer measure. [calculator allowed] (MSHSML 2016-17 1B #3)

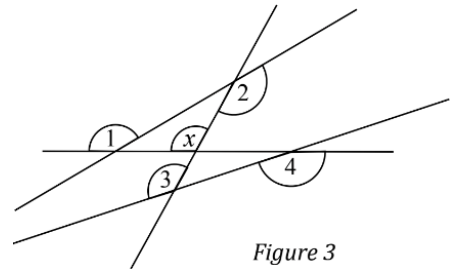


Figure 3