

Math Team
Meet 1 Events AB Problems 1-2 2016-17 Practice

Event A

Problem #1 (“quickie”; 1 point)

Try to solve each problem within one minute.

1. Express $\frac{\frac{4}{3} - \frac{3}{4}}{\frac{3}{4} + \frac{4}{3}}$ as a quotient of two relatively prime integers.
(MSHSML 2017-18 1A #1)

2. Express $\frac{2}{3} + \frac{5}{\frac{5}{3} + \frac{5}{6}}$ as a quotient of two relatively prime integers. (MSHSML 2016-17 1A #1)

Problem #2 (“textbook”; 2 points)

Try to solve each problem within two minutes.

1. Compute $\frac{lcm(20,18)}{gcd(20,18)}$. (MSHSML 2017-18 1A #2)

2. Find the base-nine number that is equivalent to 245_6 .
(MSHSML 2016-17 1A #2)

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Event B

Problem #1 (“quickie”; 1 point)

Try to solve each problem within one minute.

1. Right triangle $\triangle ABC$ has legs of lengths $3\sqrt{2}$ and $4\sqrt{2}$. Determine exactly the length of the hypotenuse. (MSHSML 2017-18 1B #1)

2. A rectangular box has faces whose side lengths are $\sqrt{2}$, 3, and 5. Find the longest diagonal of the box. (MSHSML 2016-17 1B #1)

Problem #2 (“textbook”; 2 points)

Try to solve each problem within two minutes.

1. Equilateral $\triangle ABC$ has side length of 5. Point D is in the interior of $\triangle ABC$ such that $\triangle DCB$ is an isosceles right triangle. Determine exactly AD . (MSHSML 2017-18 1B #2)

2. $\triangle ABC$ is an isosceles triangle whose hypotenuse \overline{AC} has a length of $9\sqrt{6}$. If point D lies on \overline{BC} such that $m\angle BAD = 30^\circ$, determine exactly AD . (MSHSML 2016-17 1B #2)