1. _____

2. _____ (simplest radical form)

3. _____ (simplest radical form)

4. _____

5. _____ (common fraction, simplest radical form)

6. _____ (simplest radical form)

7. _____

8. _____ (simplest radical form)

9. Let $ABC$ be a triangle with $AB = 10$ and $AC = 14$. Point $P$ lies on the angle bisector of $\angle BAC$ with $AP = 8$ and $BP = 6$. Point $Q$ is the intersection of lines $\overline{AC}$ and $\overline{BP}$. What is the area of triangle $BCQ$? Express your answer as a common fraction.

10. Calculate $\text{lcm}(228, 2025)$.

1. 1 (*MATHCOUNTS 2013: Chapter Countdown*)

2. $45\sqrt{7}$ (*MATHCOUNTS 2012: National Target*)

3. $28 + 7\sqrt{2}$ (*MATHCOUNTS 2013: National Countdown*)

4. 13 (*MATHCOUNTS 2013: State Sprint*)

5. $\frac{\sqrt{3}}{3}$

6. $63\sqrt{3}$ (*MATHCOUNTS 2016: State Countdown*)

7. 8

8. $2\sqrt{2} - 2$

9. Let $ABC$ be a triangle with $AB = 10$ and $AC = 14$. Point $P$ lies on the angle bisector of $\angle BAC$ with $AP = 8$ and $BP = 6$. Point $Q$ is the intersection of lines $\overline{AC}$ and $\overline{BP}$. What is the area of triangle $BCQ$? Express your answer as a common fraction. $\boxed{96/5}$

10. Calculate $\text{lcm}(228, 2025)$. $\boxed{153{,}900}$