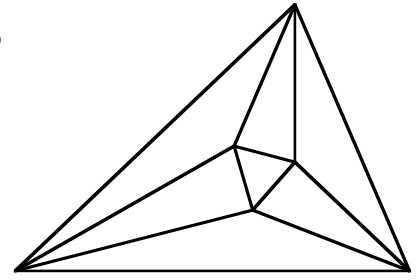


Meet 4 - Event A 2010-2011

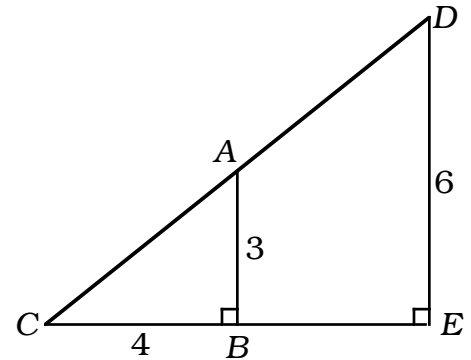
Questions are worth 2-2-2-4-4 points respectively.
Remember your units.

NO CALCULATORS ALLOWED



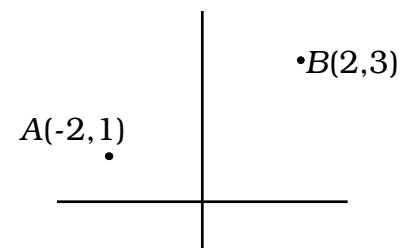
_____ 1. Solve for x : $3x + 4 > 10$

_____ 2. In right triangle ABC , $\angle B = 90^\circ$, $AB = 3''$, $BC = 4''$.
Find AC .

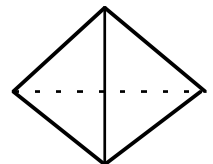


_____ 3. In the drawing for problem 2, if $\angle B = \angle E = 90^\circ$, $AB = 3''$, $BC = 4''$ and $DE = 6''$,
what is BE ?

_____ 4. If point A is at $(-2, 1)$ and B is at $(2, 3)$, what is the
 y -intercept of the line containing A and B ?



_____ 5. A tetrahedron is made of four equilateral triangles with
edges of 4 cm. What is the surface area?

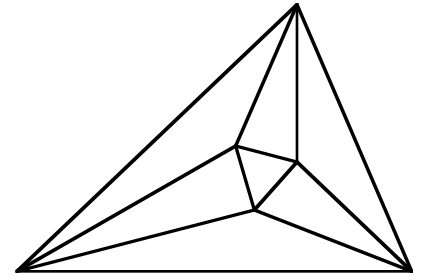


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Meet 4 - Event A 2010-2011

Answers

Questions are worth 2-2-2-4-4 points respectively.
Remember your units.

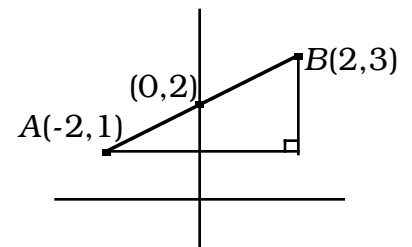


$x > 2$ 1. $3x + 4 > 10$, $3x > 6$, $x > 2$

5 inches 2. $AC = \sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5$

4 inches 3. $\triangle ABC \sim \triangle DEC$, so $\frac{3}{6} = \frac{4}{CE}$, $CE = \frac{6(4)}{3} = 8$, $8 - 4 = 4$

$\frac{2}{\text{or } (0, 2)}$ 4. Slope = $\frac{3 - 1}{2 - -2} = \frac{2}{4} = \frac{1}{2}$ So when x increases from -2 to 0 , y increases from 1 to 2 .

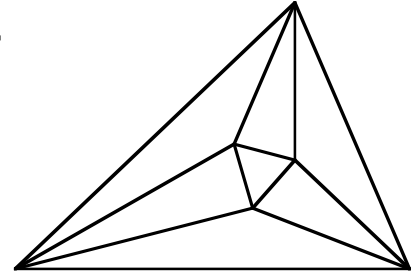


$16\sqrt{3} \text{ cm}^2$ 5. $A = \frac{s^2\sqrt{3}}{4} = \frac{4^2\sqrt{3}}{4} = \frac{16\sqrt{3}}{4} = 4\sqrt{3}$ for one triangle.
 $A = 4(4\sqrt{3}) = 16\sqrt{3}$ for the tetrahedron.

Meet 4 - Event B 2010-2011

Questions are worth 2-2-2-4-4 points respectively.
Remember your units.

NO CALCULATORS ALLOWED



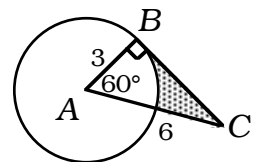
_____ 1. Simplify: $\sqrt{50}$

_____ 2. What is the slope of $3x - 4y = 6$?

_____ 3. What is the slope of the line through $(-4, 3)$ and $(2, -5)$ as a ratio of relatively prime numbers?

_____ 4. Solve for x : $|2x + 5| < 11$.

_____ 5. BC is tangent to circle A at B . $AB=3$ cm and $AC=6$ cm and $\angle A = 60^\circ$. Find the shaded area in terms of π . Simplify any radicals and write the answer as a ratio of relatively prime numbers.

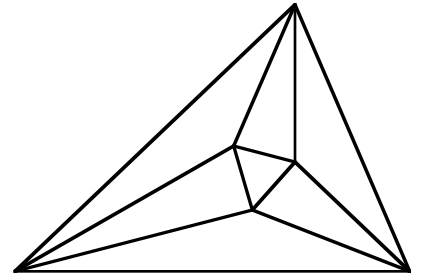


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Meet 4 - Event B 2010-2011

Answers

Questions are worth 2-2-2-4-4 points respectively.
Remember your units.



$$\underline{5\sqrt{2}} \quad 1. \quad \sqrt{50} = \sqrt{25 \cdot 2} = 5\sqrt{2}$$

$$\underline{\frac{3}{4}} \quad 2. \quad 3x - 4y = 6, 3x = 4y + 6, 3x - 6 = 4y, y = \frac{3}{4}x - \frac{6}{4}$$

$$\underline{-\frac{4}{3}} \quad 3. \quad \frac{-5 - 3}{2 - -4} = \frac{-8}{6} = -\frac{4}{3}$$

$$\underline{-8 < x < 3} \quad 4. \quad -11 < 2x + 5 < 11, -16 < 2x < 6, -8 < x < 3$$

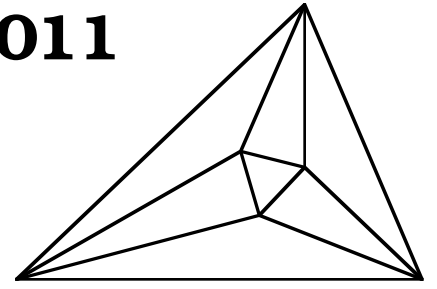
or $x > -8$ and $x < 3$

$$\underline{\frac{9\sqrt{3} - 3\pi}{2} \text{ cm}^2} \quad 5. \quad BC = \sqrt{6^2 - 3^2} = \sqrt{36 - 9} = \sqrt{27} = 3\sqrt{3}$$
$$\text{Area } \triangle ABC = \frac{1}{2} \cdot 3 \cdot 3\sqrt{3} = \frac{9\sqrt{3}}{2}, \text{ Area of circle sector} = \frac{60^\circ}{360^\circ} \times \pi 3^2 = \frac{1}{6} \cdot 9\pi = \frac{3\pi}{2}$$
$$\text{Shaded area} = \frac{9\sqrt{3}}{2} - \frac{3\pi}{2} = \frac{9\sqrt{3} - 3\pi}{2}$$

Meet 4 - Team Event 2010-2011

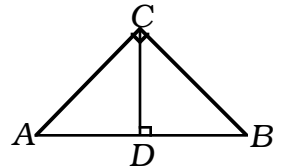
Questions are worth 4 points each.
Remember your units.

NO CALCULATORS ALLOWED



_____ 1. Solve for x if four less than x is greater than three more than twice x .
 x

_____ 2. Right triangle ABC has altitude CD . If $AC=BC=10$ cm, find CD in simplified radical form.



_____ 3. In the diagram for problem 2, $AC=12$ cm, $BC=10$ cm. Find AD .

_____ 4. In the diagram for problem 2, $AC=12$ cm, $BC=10$ cm. Find the area of $\triangle ABC$.

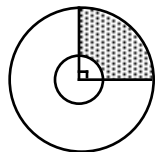
_____ 5. In the diagram for problem 2, $AC=12$ cm, $BC=10$ cm. Find CD .

_____ 6. Simplify: $4\sqrt{200}$

_____ 7. Write as an inequality: x is at least eight.

_____ 8. What are the integer values in the set of x such that $3 < x \leq 6$?

_____ 9. Given two concentric (same center) circles, one with radius of 1 cm and one with radius 4 cm. What is the area of the shaded part in terms of π ?



_____ 10. What is the perimeter of the shaded part in problem 9, in terms of π ?

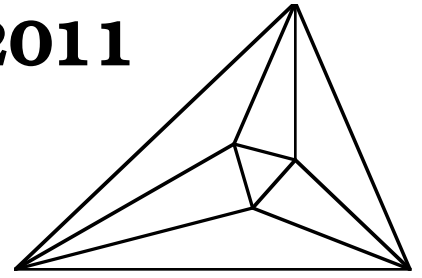
Meet 4 - Team Event

2010-2011

Answers

Questions are worth 4 points each.

Remember your units.



$x < -7$ 1. $x - 4 > 2x + 3, x - 7 > 2x - 7 > x$

$5\sqrt{2}$ cm 2. Since $AC = BC = 10, \angle A = \angle B = 45^\circ$, So $\angle ACD = \angle BCD = 45^\circ$ and $AD = BD = CD$.
 $AB = \sqrt{10^2 + 10^2} = \sqrt{200} = 10\sqrt{2}, CD = \frac{1}{2}(10\sqrt{2}) = 5\sqrt{2}$

$\frac{72\sqrt{61}}{61}$ cm 3. $AB = \sqrt{12^2 + 10^2} = \sqrt{244} = 2\sqrt{61}, \frac{AD}{12} = \frac{12}{2\sqrt{61}}, AD = \frac{6 \cancel{12} \cdot 12}{\cancel{2}\sqrt{61}} = \frac{72}{\sqrt{61}} \cdot \frac{\sqrt{61}}{\sqrt{61}} = \frac{72\sqrt{61}}{61}$

60 cm^2 4. Area = $\frac{1}{2}(12)(10) = 60 \text{ cm}^2$

$\frac{60\sqrt{61}}{61}$ cm 5. Using problems 3 and 4: $A = 60 = \frac{1}{2} \cdot \cancel{2} \sqrt{61} \cdot CD, CD = \frac{60}{\sqrt{61}} = \frac{60\sqrt{61}}{61}$ cm
or $\sqrt{12^2 - \left(\frac{72}{\sqrt{61}}\right)^2} = \sqrt{144 - \frac{72 \cdot 72}{61}} = \sqrt{\frac{144 \cdot 61 - 72 \cdot 72}{61}} = \sqrt{\frac{3600}{61}} = \frac{60}{\sqrt{61}} = \frac{60\sqrt{61}}{61}$

$40\sqrt{2}$ 6. $4\sqrt{100 \cdot 4} = 4 \cdot 10\sqrt{2} = 40\sqrt{2}$

$x \geq 8$ 7. This means x is eight or more

4, 5, 6 8. Three is not included but six is.

$\frac{15\pi}{4} \text{ cm}^2$ 9. $\frac{1}{4}(\pi 4^2 - \pi 1^2) = \frac{1}{4}(15\pi) = \frac{15\pi}{4}$

$\left(6 + \frac{5\pi}{2}\right)$ cm 10. $4 - 1 = 3$ for each straight line. $\frac{1}{4}(2\pi 4) + \frac{1}{4}(2\pi 1) = 2\pi + \frac{\pi}{2} = \frac{4\pi}{2} + \frac{\pi}{2} = \frac{5\pi}{2}$
or $\frac{12 + 5\pi}{2}$ cm $P = 3 + 3 + \frac{5\pi}{2} = 6 + \frac{5\pi}{2}$