

Name _____ School _____

SENIOR DIVISION
Category 1: Functions of Special Angles
CALCULATORS NOT ALLOWED

1. (2 pts) Find the value of the following expression: 1. _____

$$\cos 45^\circ \cdot \sin 315^\circ$$

2. (3 pts) Find the value of the following expression: 2. _____

$$(1 + \tan 30^\circ)[1 + \tan(-30^\circ)]$$

3. (5 pts) Find the value of the following expression: 3. _____

$$\frac{\cos 210^\circ + \sin 150^\circ}{\tan 60^\circ}$$

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SENIOR DIVISION
Category 3: Probability

1. (2 pts) On the roll of a single die, what is the probability that the number rolled is even or greater than 4?

1. _____

2. (3 pts) Two dice are rolled and the value of each is added together. What is the probability that the sum is less than 4?

2. _____

3. (5 pts) In a deck of 52 cards, two cards are drawn. What is the probability that no queens are drawn?

3. _____

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Category 2: Algebra Word Problems

1. (2pts) If the conversion from Fahrenheit to Centigrade is given by the equation

$\left(\frac{9}{5}\right)C + 32 = F$, then at what temperature will the Fahrenheit temperature be exactly three times its Centigrade equivalent?

1. _____ C°

2. (3 pts) A field is to be fenced with a 3-foot clearance between the field and the fencing. If the field is 190 feet long and 85 feet wide, then how much fencing is needed?

2. _____ feet

3. (5pts) In the morning, a car's mileage was 45.0 miles/gallon after 200 miles. At the end of the day, the car's instruments read 250 miles travelled and 47.0 miles/gallon. What was the mileage achieved by the car during that day?

3. _____ miles/gallon

Names _____

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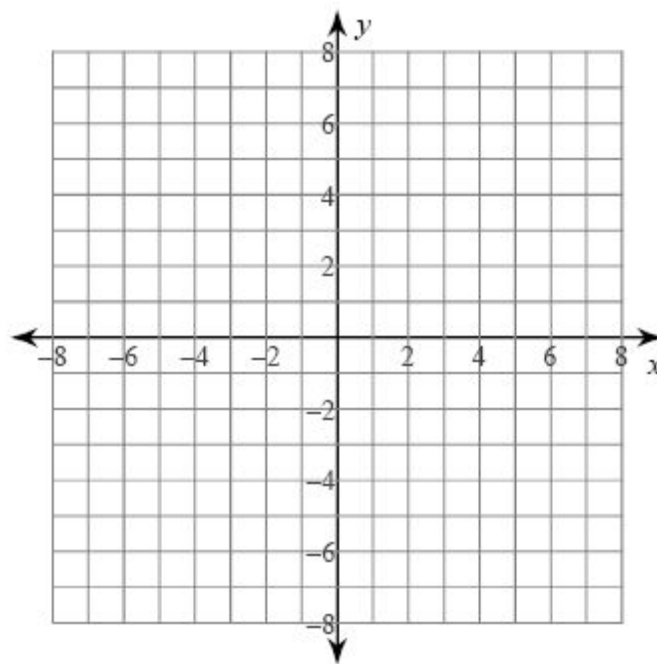
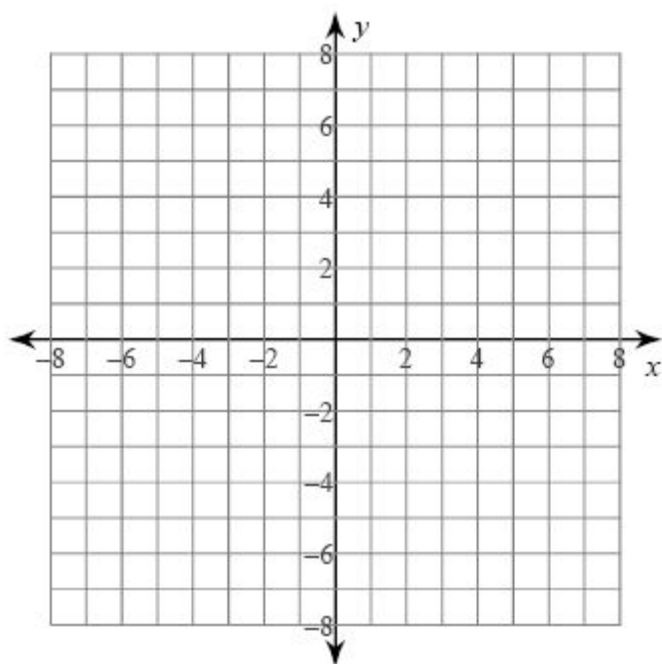
SENIOR DIVISION

Category 4: Team Graphing (Pass in only one paper)

CALCULATORS NOT ALLOWED

1. (2pts) Sketch the graph of $y = x^2 - 5x + 6$.
Label all of the intercepts.

2. (3pts) Sketch $x + 2 = |y|$.



3. (5pts) Sketch the graph of $|x| + |y| = 4$.