7th/8th grade Math Meet '12

Name:_____ School Team:_____

Event 1: Problem Solving (no calculators)

Part 1: Computation (2 pts. each)

1) $1/2 + 1/x + 3/10 = 1$

2) 20% of 15 = x % of 12

3) $100 - x = (2)(3)(4) + 36$

4) $0.36 \div x = 4.0$

5) $18/42 = x/35$

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Event 1: Problem Solving (no calculators)

Part 2: Problems Involving Order of Operations (2 pts. each)

Use the order of operations to evaluate each problem.

1) $3-2\ +3\bullet 3-\sqrt{9}$

2) $3+8\div 4-0/5+\sqrt{16}$

3) $\dfrac{9+7-2(3)}{3+2}$

4) $36-6^2\div 9-2$

5) $3(2^2+1)-30\div 3$

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Name:_____ School Team:_____

Event 2: Conversions. (with calculators)
(5 points each)

12 inches = 1 foot
3 feet = 1 yard
1 mile = 5280 feet
3 teaspoons (t) = 1 Tablespoon (T)
8 ounces (oz) = 1 cup (c)
2 cups (c) = 1 pint (pt)
2 pints (pt) = 1 quart (qt)
2 tablespoons (T) = 1 ounce (oz)
4 quarts (qt) = 1 gallon (gal)

Perform the following conversions, using the unit ratios. When necessary, round answers to the nearest hundredth.

1) How many inches are in $2\frac{1}{3}$ yards?

_____ inches

2) How many cups are in 4 quarts?

_____ cups

3) How many ounces are in 6 pints?

_____ ounces

4) How many yards are in 3 miles?

_____ yards

5) How many teaspoons are in 1 ½ cups?

_____ teaspoons

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Event 3: Problem Solving (with calculators)

Part 1: Adding and Subtracting Mixed Numbers. (3 points each)

Add or Subtract.
Write answers as mixed numbers in reduced form. No decimal answers!

1) $1\frac{5}{8} + 2\frac{1}{2}$ = _____

2) $\frac{1}{6} + \frac{1}{2} + \frac{2}{3}$ = _____

3) $\frac{9}{16} - \frac{3}{8}$ = _____

4) $9\frac{1}{4} - 4\frac{5}{16}$ = _____

5) $9\frac{1}{32} - 3\frac{3}{8}$ = _____

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Name:_____School Team:_____

Event 3: Problem Solving (with calculators)
Part 2: Multiplying and Dividing Mixed Numbers (4 points each)
Multiply or Divide.
Write answers as mixed numbers in reduced form. No decimal answers!

1) $\left(\frac{1}{2}\right)\left(7\frac{1}{3}\right)$ = _____

2) $\left(9\frac{1}{2}\right)\left(3\frac{4}{5}\right)$ = _____

3) $\left(3\frac{3}{4}\right) \div \left(1\frac{1}{2}\right)$ = _____

4) $\left(5\frac{5}{6}\right) \div \left(1\frac{1}{14}\right)$ = _____

5) $\left(3\frac{1}{4}\right)^2$ = _____

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Event 4: Mental Math (no calculators)

Each answer is worth 2 pt each.

1) _____ 6) _____

2) _____ 7) _____

3) _____ 8) _____

4) _____ 9) _____

5) _____ 10) _____

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Event 5: Team Problems (with calculators)

Area, Perimeter, Circumference, Surface Area and Volume Formulas

b = base of the polygon
h = height of the polygon
b_1 = the first base
b_2 = the second base
r = radius

Area (A)		**Perimeter (P) and Circumference (C)**
Square	A = (b)(h)	P = the sum of the sides of the polygon
Rectangle	A = (b)(h)	
Parallelogram	A = (b)(h)	
Trapezoid	A = ½ h (b_1 + b_2)	
Circle	A = πr^2	C = $2r\pi$

Surface Area (SA)		**Volume (V)**
Prism	SA = ph + 2B	V = Bh
Cylinder	SA = Ch + 2B	V = Bh
Pyramid	SA = πrs + B	V = $\frac{1}{3}$ Bh
Cone	SA = πrs + B	V = $\frac{1}{3}$ Bh
Sphere	SA = $4\pi r^2$	V = $\frac{4}{3}\pi r^3$

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Name:_____School Team:_____

Event 5: Team Problems (with calculators)

Problem 1: Area & Perimeter Problems involving Polygons
(5 points each) LABEL YOUR ANSWERS! You must use $\pi = 3.14$

1) An illuminated sign in the main entrance of a hospital is a parallelogram with a base of 56 in. and an adjacent side of 42 in. How many inches of aluminum molding are needed to frame the sign?

2) The square parking lot of a doctor's office is to have curbs built on all four sides. If the lot is 160 ft on each side, how many feet of curb are needed? Allow 12 ft for a driveway into the parking lot.

3) The six glass panes in a kitchen light fixture each measure 4 ½ in. along the top and 10 in. along the bottom. The top and bottom are parallel. The height of each pane is 8 in. What is the combined area of the six trapezoidal panes?

4) Tiles that are 6 in. x 6 in. cover the floor of a shower. How many whole tiles are needed for the floor if the shower measures 4.5 ft by 6 ft?

5) Madison Duke is wallpapering the walls of a laundry room 8 ft by 8 ft by 8 ft high. How many square feet of paper will she need if there are 63 square feet of openings in the room?

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Event 5: Team Problems (with calculators)

Problem 2: Area & Circumference Problems involving Circles.
(5 points each) LABEL YOUR ANSWERS! You must use $\pi = 3.14$

1) Find to the nearest inch the circumference of a circle with a radius of 1 ft 9 in.

2) Find the area to the nearest square inch of the top of a circular tank with a diameter of 12 ft 8 in.

3) A 15-in. diameter wheel has a 3-in. hole in the center. Find the area of a side of the wheel to the nearest tenth.

4) Sam has a circular pool with a diameter of 30 feet. There is a 3 foot wide walkway that goes around the pool. How much fencing is need to go around the walkway? Round answer to the nearest tenth.

5) A swimming pool is circular with a diameter of 30 feet. There is a 5 foot wide walkway surrounding the pool. What is the area of the walkway? Round to the nearest tenth.

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Event 5: Team Problems (with calculators)

Problem 3: Surface Area Application Problems.
(5 points each) LABEL YOUR ANSWERS! You must use $\pi = 3.14$

1) How many square inches are in the total surface area of an aluminum box with a 2 ½ in. length, 4 ¾ in. height, and 3 in. width? Round to the nearest hundredth.

2) How many square centimeters of sheet metal are needed to form a conical rain cap 25 cm in diameter if the slant height is 15 cm? Round to the nearest hundredth.

3) What is the total surface area of a cylindrical oil storage tank that has a 40-ft diameter and 15-ft height?

4) How many square feet of steel are needed to manufacture a spherical water tank with a diameter of 45 ft? Round to the nearest tenth.

5) Find the total surface area of a conical tank that has a radius of 15 ft and a slant height of 20 ft. Round to the nearest tenth.

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Event 5: Team Problems (with calculators)

Problem 4: Application Problems involving Volume.
(5 pts. each) LABEL YOUR ANSWERS! You must use $\pi = 3.14$

1) What is the volume of a cylindrical oil storage thank that has a 40-ft diameter and 15-ft height? Round to the nearest whole number.

2) How many cubic feet are in a conical pile of sand that is 30 ft in diameter and is 20 ft high?

3) A cone-shaped storage container hold a photographic chemical. If the container is 80 cm wide and 30 cm high, how many liters of the chemical does it hold if 1 L = 1,000 cm^3 ? Round to nearest whole liter.

4) Find the volume of a pyramid that has a square base of 48 m on a side and a height of 100 m.

5) If 1 ft^3 = 7.48 gal, how many gallons can a spherical water tank hold if its diameter is 45 ft? Round to nearest whole gallon.