MPM 1D0

Grade 9 Academic Math
Diagnostic Practice Test

***Name*: _____**

Integers	Rational Numbers	Algebra	Geometry & Measurement	Problem Solving
/28	/18	/8	/28	/10

Part One – Integers **/28**

Total: /92

1. Evaluate each expression without using a calculator. You ***do not*** need to show your work. (/15)

(a) $5(-2) =$ _____	**(b)** $5 + (-2) =$ _____	**(c)** $-5 + 2 =$ _____
(d) $-3 + 9 =$ _____	**(e)** $-3 - (+9) =$ _____	**(f)** $-3 - (-9) =$ _____
(g) $-7(-8) =$ _____	**(h)** $-7 - 8 =$ _____	**(i)** $-42 \div (-7) =$ _____
(j) $0 - 15 =$ _____	**(k)** $0(-15) =$ _____	**(l)** $0 \div (-15) =$ _____
(m) $(-4)^2 =$ _____	**(n)** $-4^2 =$ _____	**(o)** $-18 \div 6 =$ _____

2. Evaluate each expression. You ***must*** show your work. (/13)

(a) $9(8 - 15)$

(b) $3 - 2(-4 - 9 \div 3)$

(c) $-15 - 24 \div (-8) + 5(-6)$

(d) $\dfrac{-14 - 13 - 33 \div 11}{(7 - 9)(-3 - 2)}$

Part Two – Rational Numbers /18

3. Evaluate each expression. You ***must*** show your work. (/11)

(a) $\frac{4}{5}+\frac{3}{5}$

(b) $\frac{7}{9}+\left(\frac{-2}{9}\right)$

(c) $\frac{1}{4}\left(\frac{2}{3}\right)$

(d) $\frac{-3}{4}-\frac{1}{6}$

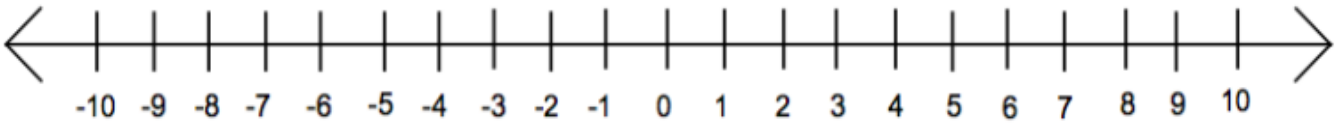
(e) $\frac{2}{3}+\frac{4}{5}$

(f) $\frac{2}{15}\div\frac{5}{3}$

4. This question deals with number sense. (/7)

(a) Place each of the given numbers on the number line.

4.3999 –5.1 0.09 4.4 0.1 –4.9



(b) Arrange the given numbers from ***largest*** to ***smallest***.

–1 0.31 0.4 –0.99 –1.01 –4.9 0.04 $\frac{1}{3}$

_____ _____ _____ _____ _____ _____ _____ _____

Part Three – Algebra /8

Show all work for the questions in this section.

5. Substitute and evaluate. (/3)

$5t^2-10 \quad (t=-7)$

6. Solve the following equation. (/1)

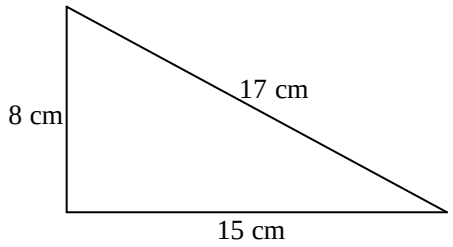
$w-9=19$

7. Write an algebraic expression that means "the product of three and a number." (/2)

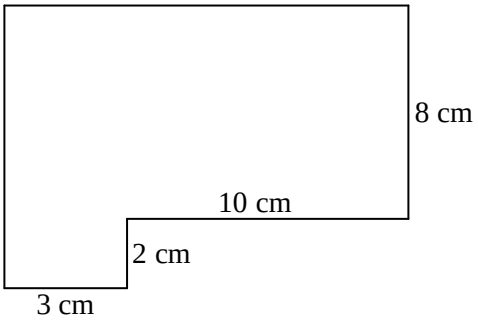
8. Translate the algebraic expression $2-x$ into words. (/2)

Part Four – Geometry and Measurement /28

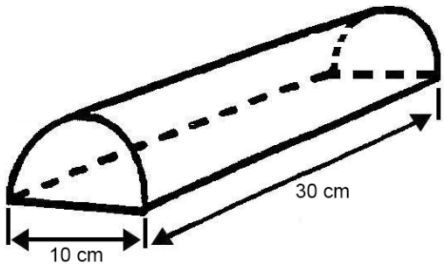
9. Show that the given triangle is a right triangle. (/4)



10. Calculate the ***perimeter*** and ***area*** of the given shape. (/5)

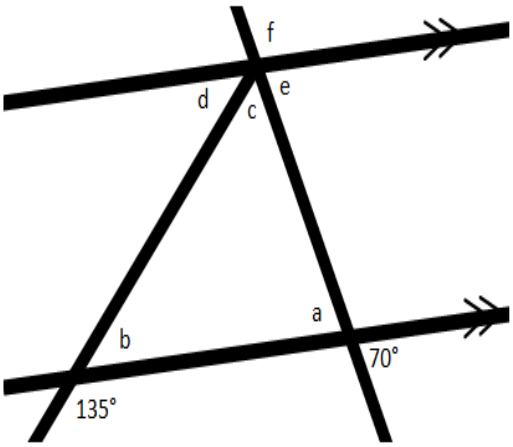


11. Calculate the surface area and volume of the given shape. (/7)



12. Find the measures of each angle labelled with a letter. In each case, state your ***reasoning***. (/12)

Measure of Angle	***Reasoning (State Why)***
a = _____	
b = _____	
c = _____	
d = _____	
e = _____	
f = _____	



Part Five – Problem Solving /10

13. Olivia and her friends together ate $\frac{2}{3}$ of a pizza. Each friend ate exactly $\frac{1}{6}$ of the ***entire*** pizza. How many people ate pizza altogether? **Hint:** A diagram is very helpful! (/4)

14. Pavani and Sania went shopping on Saturday. They bought at least one item from each of the three departments that they visited. Pavani gave the clerk $120 and she got back $11.76 change. What items did they buy? (/6)

HOUSEWARES
Dishtowels: $11.38
Curtain Rods: $12.98
Bath Mats: $29.58

CLOTHING
Shirt: $30.98
Dress: $49.90
Slacks: $39.90

TOOLS
Hammer: $17.90
Saw: $23.90
Drill: $25.78