Name: Key 12/14/2017 8th Grade – Semester Test

1) For the following expression: $3 * 3$

(3) a) Write it using exponents 3^2

b) How do you say it with an exponent? 3 to the second power

c) What is the second way of saying it? 3 squared.

2) Given: $15x - 7 + 20x$ fill in the following table.

(3)

Terms:	Coefficients:	Constant Terms:	Like Terms:	Simplify the expression:
15x, -7, 20x	~~-7~~ 15, 20	-7	15x, 20x	35x - 7

3) Match the following equations with the properties they represent.

(2)

B $a * b = b * a$

C $1 * x = x$

D $(ab)x = a(bx)$

4 $a(b + c) = ab + ac$

A) Distributive Property

B) Commutative Property of Multiplication

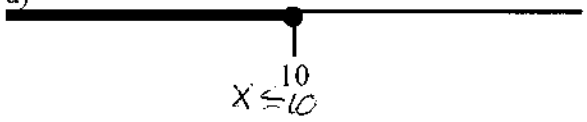
C) Identity Property of Multiplication

D) Associative Property of Multiplication

4) Write an inequality for the following graphs.

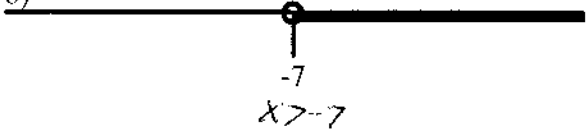
(4)

a)



$x \leq 10$

b)



$x > -7$

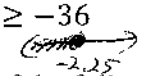
5) Find the GCF of the following numbers.

(6) a) 32, 28 $32 = 2^5$ $28 = 2^2 \cdot 7$ / $2^2 = 4$

b) 45, 50 $45 = 3^2 \cdot 5$ $50 = 2 \cdot 5^2$ / 5

6) Solve the following inequalities for the given variable and graph your answers if you can. Be sure to show all your work!!!

(6) a) $-3(4x + 21) \geq -36$ $-12x - 63 \geq -36$ $-12x \geq 27$ $x \leq -2.25$



b) $5(x + 2) + 1 < 7 - 5x$ $5x + 10 + 1 < 7 - 5x$ $+5x \quad +5x$ $10x + 11 < 7$ $10x < -4$ $x < -.4$

7) Find the LCM of the following monomials:

(6) a) $16x^2, 36x$ $16 = 2^4 x^2$ $36 = 2^2 3^2 x$ / $2^4 3^2 x^2$ / $144x^2$

b) $12x^2y, 15xy^2$ $12 = 2^2 \cdot 3 x^2 y$ $15 = 3 \cdot 5 x y^2$ $2^2 \cdot 3 \cdot 5 x^2 y^2 = 60x^2y^2$

8) Find the change in temperature, elevation, and speed.

(4) a) From $10°F$ to $-11°F$ $-10 - 11 = -21°F$

b) From $120ft$ to $1200ft$ $1200 - 120 = 1080ft$

9) Evaluate the following absolute values:

(2) a) $|-4|$ 4

b) $|-1| + 9$ $1 + 9$ 10

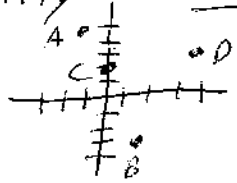
10) Simplify the following expressions by combining like terms.

(4) a) $5x + 10y + 7y - 12x$ $-7x + 17y$

b) $-2x + 11 + 10x$ $8x + 11$

11) Plot and label the points:

(4) $A(-1, 5)$ $B(2, -3)$ $C(0, 2)$ $D(4, 3)$



12) What quadrant is each letter in?

(2) a) II b) IV c) B/w I & II d) I

(2) 13) Find the difference of the following expressions:
a) $-5-3$ -8 | b) $-3+(+9)$ (6)

(3) 14) You have a rectangle with a length of 15 ft and width of x ft.
a) Draw a picture to represent this.
b) If you need the area to be 45 ft^2, what does x have to be? $x=3$

$15x=45x$, 15

(4) 15) Evaluate the expression when $a=-5$ and $b=7$
a) $\frac{a+11}{6}$ $\frac{-5+11}{6}=\frac{6}{6}=1$ | b) $a[(b-a)^2+5]$

$-5[(7-5)^2+5]$
$-5[(12)^2+5]$
$-5[144+5]$
$-5\cdot 149=-745$

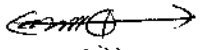
(6) 16) Solve the following equations.
a) $3x+8=12$
$-8\ \ -8$
$\frac{3x}{3}=\frac{4}{3}$ $x=\frac{4}{3}$ or $1.3\overline{}$

b) $-\frac{x}{2}-15=10$
$+15\ \ +15$
$-2\cdot -\frac{x}{2}=25\cdot -2$
$x=-50$

17) Translate the following into equations:
a) The quotient of 12 and y is 15 $\frac{12}{y}=15$
b) The sum of 5 and x is 20 $5+x=20$

Write the following in words.
c) $7-x=4$ 7 minus x is 4
d) $8x=-9$ 8 times x is -9

18) Solve the following inequalities for the given variable and graph your answers. Be sure to show all your work!
a) $x-5>12$
$+5\ \ +5$
$x>17$

b) $\frac{x}{3}<1111.3$
$x<3333$


(4) 19) Evaluate the following expressions for $a=10$ and $b=-5$.
a) $a+(-23)$ $10+(-23)=-13$ | b) $-b-a$ $-(-5)-(10)=-5$

(4) 20) Write the following in **words**. Do NOT solve it.
a) $9x+1<-6$
9 times x plus 1 is less than -6.

b) $6+\frac{x}{3}\geq -4$
6 plus x divided by 3 is greater than or equal to -4.

(4) 21) Write the prime factorization of each of the following.
a) 63 $3\cdot 7$
$7\cdot 9$
$3\cdot 3$

b) 120 $=2^3\cdot 3\cdot 5$
$12\cdot 10$

22)
(2) a) What are the two things required to have like terms? The same variable and exponent.
b) The letter in an equation is always the variable.

23) Solve for the missing variable. $m_1c_1(F_1-I_1)=-m_2c_2(F_2-I_2)$

(3)

I1	96	I2	42
F1 X		F2	
m1	17	m2	10
C	4.18	C	4.18

$17\cdot 4.18(X-96)=-10\cdot 4.18(x-42)$

$71.06x-6821.76=-41.8x+1755.6$

$112.86x=8577.36$

$X=76°C$

Name: Key 1/24/2018 8th Grade – Test 4

1) Write each of the following as a fraction.

(4)

a) $1\frac{5}{6}$ $\frac{11}{6}$

b) 0.91 $\frac{91}{100}$

c) $3\frac{2}{3}$ $\frac{11}{3}$

d) $\frac{14}{1}$

2) For the steps of adding and subtracting fractions, fill in the following blanks.

(3)

1) Get everything in fraction form.
2) Find a common denominator.
   -Multiply the top and bottom by what is missing.
3) Add/subtract the tops as normal.
4) Simplify the fraction.

3) For the steps of **dividing** fractions, fill in the following blanks.

(5)

1) Get everything in fraction form.
2) Reciprocate the fraction after the division sign and change the division sign to multiplication
3) Multiply as normal
   a) Factor the numerators and denominators
   b) Cross of things that are on both the top and bottom
   c) Multiply the tops and the bottoms

4) Combine the following fractions.

(4)

a) $\frac{3}{5} - \frac{7}{5}$ $\frac{-4}{5}$

b) $\frac{1}{8} - 2\frac{3}{8} + 4\frac{5}{8}$

$\frac{1}{8} - \frac{19}{8} + \frac{37}{8} = \boxed{\frac{19}{8}}$

5) Combine the following fractions.

(6)

a) $\frac{1}{24} + \frac{3}{18}$ (·4 ·4)

$8 \cdot 3 \quad 9 \cdot 2$

$2 \cdot 2 \cdot 2 \quad 3 \cdot 3$

$\frac{3}{72} + \frac{12}{72}$

$\frac{15}{72} = \boxed{\frac{5}{24}}$

b) $\frac{13}{28} - \frac{7}{12}$ (·7 ·7)

$4 \cdot 7 \quad 3 \cdot 4$

$2 \cdot 2 \quad 2 \cdot 2$

$\frac{39}{84} - \frac{49}{84}$

$\frac{-10}{84} \rightsquigarrow \boxed{\frac{-5}{42}}$

$12 = 2^2 \cdot 3$ (5)
$15 = 3 \cdot 5$ (4)

6) Solve the following equations by removing the fractions and decimals in your work.

60 a) $\frac{1}{3}x + \frac{3}{12} = \frac{7}{15}$

(6) $20x + 15 = 28$

$20x = 13$

$x = \frac{13}{20}$

b) $2.3x + 8.25 = 2.4$ (100)

$230x + 825 = 240$

$230x = -585$

$x = \frac{-585}{230} \rightarrow -\frac{117}{46}$

7) Solve the following equations. Leave the fractions in your work.

$\frac{9}{2}$ a) $\frac{2}{9}x = 12 \cdot \frac{9}{2}$

(6) $x = 54$

b) $\frac{1}{5}x + \frac{5}{8} = \frac{4}{4} \cdot \frac{7}{10} - \frac{5}{8} \cdot 5 = \frac{3}{40}$

$-\frac{5}{8}$

$5 \cdot \frac{1}{5}x = \frac{3}{40} \cdot 5$

8) Divide the following fractions.

(6) a) $\frac{14}{4} \div \frac{18}{20}$

$\frac{7}{1} \cdot \frac{14}{4} \cdot \frac{20}{18} \cdot \frac{5}{9} = \frac{35}{9}$

b) $2\frac{3}{7} \div 1\frac{1}{7}$

$\frac{17}{7} \cdot \frac{7}{8} = \frac{17}{8}$

$x = \frac{15}{40} \rightarrow \frac{3}{8}$

9) Multiply the following fractions.

(6) a) $\frac{4}{1} \cdot \frac{28}{4} \cdot \frac{12}{1} \cdot \frac{3}{1} = 12$

b) $3\frac{1}{8} * 6\frac{5}{8}$

$\frac{25}{8} \cdot \frac{53}{8} = \frac{1325}{64}$

Name: Key 2/20/2018 8th Grade – Test 5

1) Fill in the blanks:

a) Quotient Rule: When dividing with the same base, you keep the base and subtract the exponents.

(4)

b) Product Rule: When multiplying with the same base, you keep the base and add the exponents.

c) "Power to a power, you multiply the exponents"

2)

a) If you do not see an exponent on the base, then you assume it is 1 (Think x^1)

(2)

b) Anything with an exponent of zero is 1. (Think x^0)

c) If something has a negative exponent, then you have to reciprocate it.

3) Simplify the following and write your answer in scientific notation.

(12)

a) $\frac{7.65*10^{-2}}{5.67*10^{4}}$ 1.349×10^{-6}

b) $(42.3 * 10^{4})(6.23 * 10^{-14})$ 10^{-10} 2.635×10^{-8}

c) $(10^{5} * 10^{4})^{-2}$ $(10^{9})^{-2} = 10^{-18}$

d) $(7.54 * 10^{-2})(3.45 * 10^{9})$ $26.01 \times 10^{7} = 2.601 \times 10^{8}$

4) Give the name of the following units.

(4)

a) dJ decijoule

b) km kilometer

c) mg milligram

d) hL hectoliter

5) Give the abbreviation of the following units.

(4)

a) picowatt pW

b) centimeter cm

c) microsecond μs

d) millijoule mJ

6) One Step Conversions

(4)

a) 0.0723 kJ to J

$\frac{7.23 \times 10^{-2} \text{ kJ}}{1} \left| \frac{10^{3} \text{ J}}{1 \text{ kJ}} \right. = 7.23 \times 10^{1} \text{ J}$

b) 445 s to ms

$\frac{4.45 \times 10^{2} \text{ s}}{1} \left| \frac{10^{3} \text{ ms}}{1 \text{ s}} \right. = 4.45 \times 10^{5} \text{ ms}$

7) Two Step Conversions (6)

a) 936800 dm to Mm

9.368×10^{-2} Mm

$9.368 \times 10^{5}\ dm \left| \frac{1\ m}{10\ dm} \right| \frac{1\ Mm}{10^{6}\ m}$

b) 0.4744 nJ to μJ

$4.744 \times 10^{-1}\ nJ \left| \frac{1\ J}{10^{9}\ nJ} \right| \frac{10^{6}\ \mu J}{1\ J} = 4.744 \times 10^{-4}\ \mu J$

8) Basic Conversions (6)

a) 28.68 c to gal

$25.68\ \text{c} \left| \frac{1\ pt}{2\ c} \right| \frac{1\ qt}{2\ pt} \left| \frac{1\ gal}{4\ qt} \right| = 1.793\ gal$

b) 0.004279 g to lbs

$.004279\ g \left| \frac{1\ oz}{28.3\ g} \right| \frac{1\ lb}{16\ oz} = 9.45 \times 10^{-6}\ lb$

$d = r \cdot t$

9) You have driven $9 * 10^{10} mil$ in 1000hr. How fast were you going? (8)

$9 \times 10^{10}\ mil \left| \frac{5280\ ft}{1\ mil} \right| \frac{12\ in}{1\ ft} \left| \frac{2.54\ cm}{1\ in} \right| \frac{1\ m}{100\ cm} = 1.448 \times 10^{14}\ m$

$\frac{1000\ hr}{1\ hr} \left| \frac{60\ min}{1\ min} \right| \frac{60\ sec}{1\ min} = 3.6 \times 10^{6}\ sec$

$\frac{1.448 \times 10^{14}}{3.6 \times 10^{6}} = 4.022 \times 10^{7}\ m/sec$

10) You drove 90ft at 600m/hr. How long did it take you? (8)

$90\ ft \left| \frac{12\ in}{1\ ft} \right| \frac{2.54\ cm}{1\ in} \left| \frac{1\ m}{100\ cm} \right| = 27.43\ m$

$\frac{600\ m}{hr} \left| \frac{1\ hr}{60\ min} \right| \frac{1\ min}{60\ sec} = .1667\ m/sec$

$\frac{27.43}{.1667} = 164.5\ sec$

11) You are driving 456ft/sec for 20hr. How far have you gone? (3)

$\frac{456\ ft}{sec} \left| \frac{12\ in}{1\ ft} \right| \frac{2.54\ cm}{1\ in} \left| \frac{1\ m}{100\ cm} \right| = 139.0\ \frac{m}{sec}$

$20\ hr \left| \frac{60\ min}{1\ hr} \right| \frac{60\ sec}{1\ min} = 72000\ sec$

$139 \cdot 72000 = 1.00 \times 10^{7}\ m$

$6.001 \times 10^{7}\ m$

12) Write the following in scientific notation. (4)

a) 1234 1.234×10^{3}

b) 9876000 9.876×10^{6}

c) 0.06543 6.543×10^{-2}

d) 0.003985 3.985×10^{-3}

13) Simplify the following expressions. Leave your answers in exponent form with positive exponents. (8)

a) $\frac{15x^{9}y^{5}}{20x^{4}y^{9}}$ $\frac{3x^{5}}{4y^{4}}$

b) $\left(\frac{7^{4}}{7^{9}}\right)^{11}\left(\frac{1}{7^{5}}\right)^{4} = \frac{1}{7^{55}}$

c) $x^{9}y^{4} * 3^{2}x^{5}y^{-10}$ $\frac{9x^{14}}{y^{6}}$

d) $(4^{3}x^{9}y^{3} * x^{2})^{6}$ $4^{18}x^{66}y^{18}$

Name: Key 3/23/2018 8th Grade – Test 6

1) Convert the following factions and decimals to percentages. Convert the following percentages to decimals.

(5)

a) 3/8 37.5%
b) ¼ 25%
c) .698 69.8%
d) 74.3% .743
e) .00062 .062%
f) 1/3 33.3%
g) 1/5 20%
h) 2.98% .0298
i) 5/6 83.3%

2) Find the percent of change in the following problems. Keep one decimal place in all your answers

(8)

a) 46 is increased to 54 $\frac{54-46}{46} = 17.4\%$
b) Milk priced went from \$3.98 to \$4.78 $\frac{4.78-3.98}{3.98} = 20.1\%$
c) 37 is decreased to 25 $\frac{25-37}{37} = -32.4\%$
d) Propane has gone from \$3.99 to \$1.69 $\frac{1.69-3.99}{3.99} = -57.6\%$

3) Answer the following questions about percentages. Remember the three different types of percent questions we talked about.

(12)

a) What is 10% of 40? $x = .1 \times 40 = 4$
b) What is 27% of 102? $x = .27 \times 102 = 27.54$
c) 56 is what percent of 70? $\frac{56}{70} = \frac{x \cdot 70}{70}$ $x = 80\%$
d) 65 is what percent of 75? $\frac{65}{75} = \frac{x \cdot 75}{75}$ $x = 86.7\%$
e) 15 is 75% of what number? $\frac{15}{.75} = \frac{.75x}{.75}$ $x = 20$
f) 46 is 35% of what number? $\frac{46}{.35} = \frac{.35x}{.35}$ $x = 131.4$

Bonus:
You have 6 blue, 9 red, 10 purple marbles in a bag. 25
a) What is the probability of drawing a red marble? 9/25 = 36%
b) What is the probability of Mr. Peterson drawing a grey marble?

(+1) $\frac{25}{25} = 100\%$ or $\frac{0}{25} = 0\%$

(+5)

Application problems!!

4) Find the missing values. When you see the symbol (@) it means "at this price per item."

(8)

a) Total Sales: $250 ×.095
Tax Rate: 9.5%
Tax: $ 23.75
Total: $ 273.75

b) Original Price: $500 ×.3 = 150
Discount rate: 30%
New Price: $ 350

c) Bought:
2 Books @ $10 = 20
no tax 5 cans of soup @ $2 = 10
Tax Rate: 10% 20 ×.1
Tax: $ 2
Total: $ 32

d) Bought:
Star Wars VI @ $25 → 25
3 Shirts @ $15 → 45
Tax Rate: 9% 70 ×.09
Tax: $ 6.3
Total: $ 76.3

5) The simple interest formula is given by: I=P*r*t. State what each letter represents and the units that go with it.

(3)

→ time (years)
→ rate (%)
→ principal ($)
→ interest ($)

P

6) Lane invested $800 into a savings account that earns 7% interest. If he leaves the money in the account for 7 years, how much interest does he make? How much money does he have now?

(3)

t

$I = 800 \times .07 \times 7$

$I = \$392$

$A = 800 + 392 = \$1192$

I

7) Lynkin earned $75 on a savings account that earned 6% interest. If she had left her money in the account for 3 years, how much did she originally invest in the account? How much money does she have now?

(3)

t

$75 = P(.06)(3)$

$\frac{75}{.18} = \frac{.18P}{.18} \Rightarrow P = \$416.67$

$A = \$491.67$

8) Alexis invested $7,000 in a savings account and earned $68 over 2 years. What was the interest rate she was earning? How much money does she have now?

(3)

$68 = 7000 \cdot r \cdot 2$

$\frac{68}{14000} = \frac{14000r}{14000}$

$r = .5\%$

$\$7068$

9) Jason has $950, but he wants $1,000. The money is in a savings account that earns **0.08%**. How long does he have to leave his money in the account? (HINT: How much does he need to make in interest?)

(3)

$50 = 950(.0008)(t)$

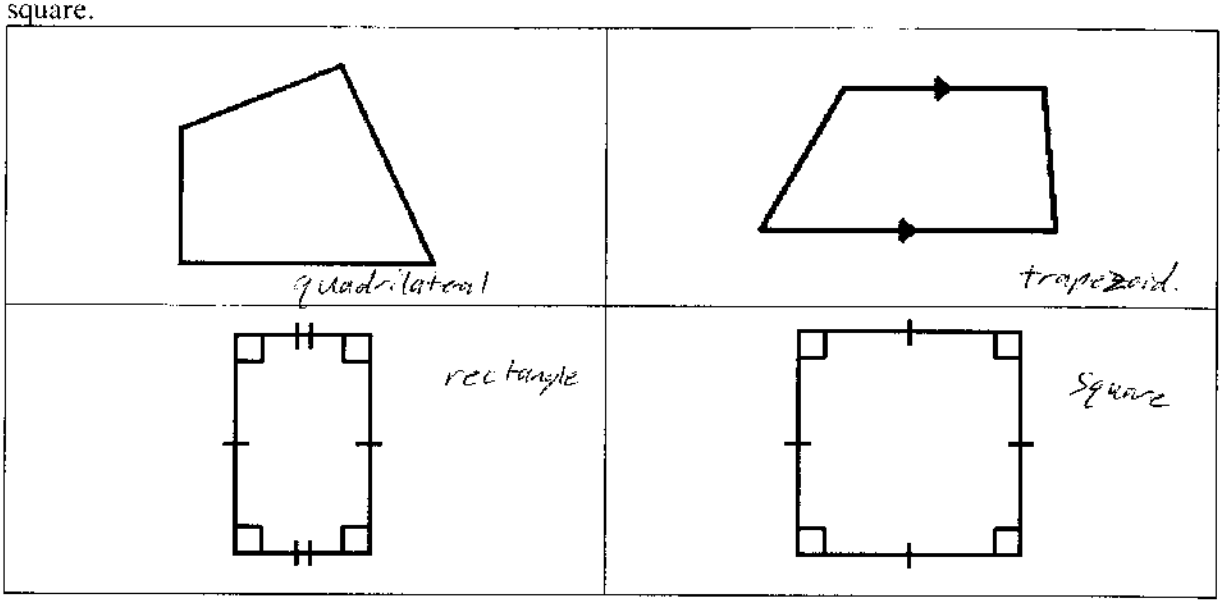
$\frac{50}{.76} = \frac{.76t}{.76}$

$t = 65.8$ years

Name: key 4/27/2018 8th Grade – Test 7

1) Classify the following as a quadrilateral, parallelogram, rhombus, trapezoid, rectangle, or square.

(4)



2) The following shapes are regular. Find an exterior angle.

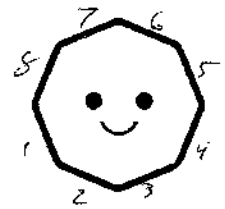
a) hexagon

6

$\frac{360}{6} = 60°$

(4)

b)



$\frac{360}{8} = 45°$

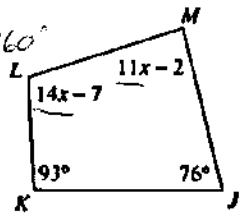
3) Solve for x.

(6)

$25x + 160 = 360°$

$25x = 200$

$x = 8$

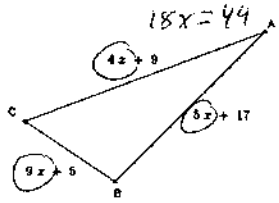


P = 75

$18x + 31 = 75$

$18x = 44$

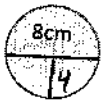
$x = 2.\overline{4}$



4) Calculate the circumference **AND** area for each of the following circles.

(6)

a)



$C = d \cdot \pi$

$= 8 \cdot 3.14$

$25.12\,cm$

or

$25.13\,cm$

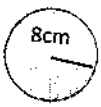
$A = 4^2 \cdot \pi$

$= 50.24\,cm^2$

or

$50.27\,cm^2$

b)



$C = d \cdot \pi$

$= 16\pi$

$50.24\,cm$

or

$50.27\,cm$

$A = 8^2 \pi$

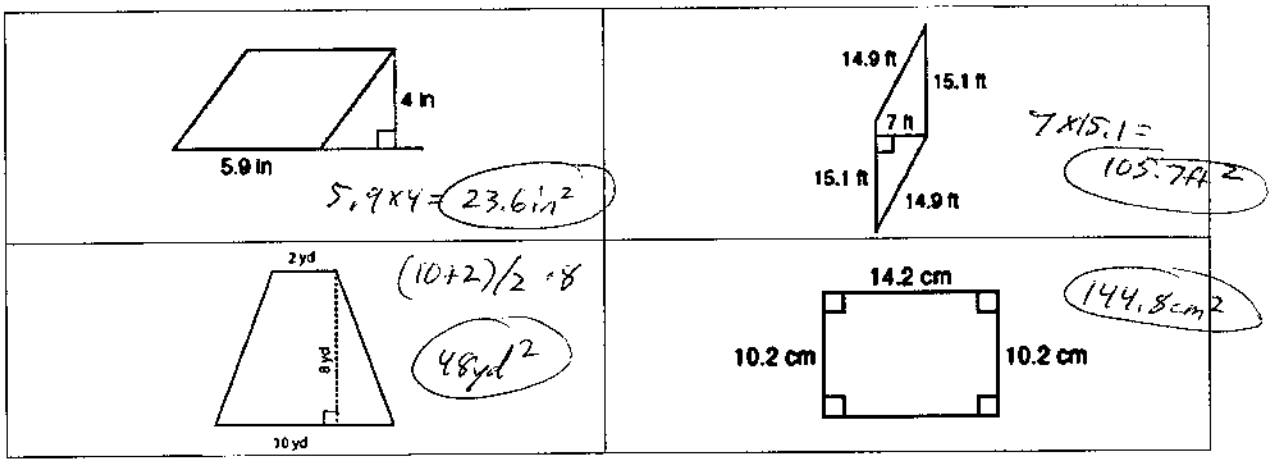
$= 201.1\,cm^2$

or

$201\,cm^2$

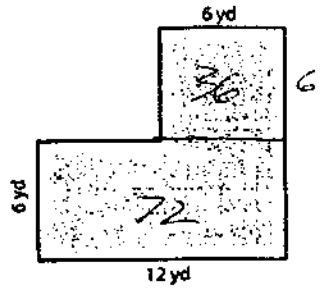
5) Calculate the area for each of the following quadrilaterals.

(8)



6) Find the area of the following shape.

(3) ~~9~~ 108 yd²



7) Find the missing angles given the following information.

(4) a) $m\angle 1 = 155°$, $m\angle 3 = ?$ 155°

b) $m\angle 6 = 3x + 10$, $m\angle 7 = 2x - 25$

$3x + 10 + 2x - 25 = 180$

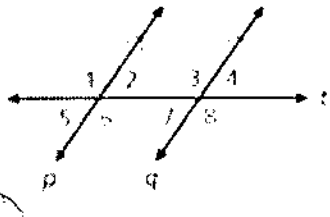
$5x - 15 = 180$

$5x = 195$

$x = 39$

$m\angle 6 = 127^\circ$

$m\angle 7 = 53^\circ$



8) Given the area, find the diameter and radius of the following circles.

(6) a) $A = 50.24 in^2 = \pi \cdot r^2$

$\sqrt{r^2} = \sqrt{16}$

$r = 4 in \Rightarrow d = 8 in$

b) $A = 28.26 ft^2 = \pi \cdot r^2$

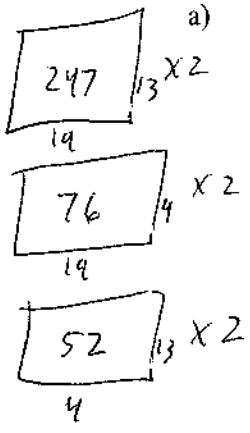
$\frac{28.26}{\pi} = \frac{\pi r^2}{\pi}$

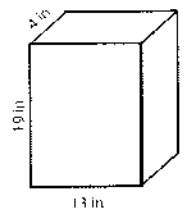
$\sqrt{r^2} = \sqrt{9}$

$r = 3 ft \Rightarrow d = 6 ft$

(6) 9) Calculate the surface area of the following shapes.

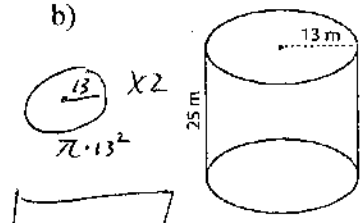
a)





750 in²

b)



13 x 2

$\pi \cdot 13^2$

2041 × 25

$C = 26\pi$

$= 81.64$

530.86 × 2 = 1061.32 circles

+ 2041 rect.

3102.3 m²

Name: Key 1/12/2018 8th Grade – Quiz 13

1) Match the following forms with their definitions

C	W-2	A. form used by employees to inform employers of exemptions
A	W-4	B. form used to report income to the state
D	1040	C. form used by employers to report income paid to an employee
B	ND-1	D. form used to report income to the IRS

2) Write the fraction in simplest form. Show all your work!

a) $\frac{24x^{11}}{18x^3}$ $\frac{4x^8}{3}$

b) $\frac{75x^2y^3}{245xy^8}$ $\frac{15x}{49y^5}$

3) Add/subtract the following fractions.

a) $\frac{1}{24} - \frac{3}{18}$ $3 \cdot 2 \cdot 2$, $3 \cdot 3 \cdot 2$ $\frac{3}{72} - \frac{12}{72} = \frac{-9}{72}$ $= \frac{-1}{8}$

b) $\frac{2}{6} + \frac{3}{16}$ $2 \cdot 3$, $2 \cdot 2 \cdot 2 \cdot 2$ $\frac{16}{48} + \frac{9}{48} = \frac{25}{48}$

4) Add/subtract the following fractions.

a) $4\frac{1}{12} - 3\frac{3}{16}$ $4 - 3 = 1$ $\frac{4 \cdot 1}{4 \cdot 12} - \frac{3 \cdot 3}{16 \cdot 3}$ $\frac{4-9}{48} = \frac{-5}{48}$ $\frac{48-5}{48} = \frac{43}{48}$

b) $2\frac{2}{21} - 1\frac{3}{14}$ $2 - 1 = 1$ $2 \cdot \frac{2}{2 \cdot 21} - \frac{3 \cdot 3}{14 \cdot 3}$ $\frac{4-9}{42} = \frac{-5}{42}$ $\frac{42}{42} - \frac{5}{42}$ $\frac{37}{42}$

5) Divide the following fractions.

a) $\frac{14}{4} \div \frac{18}{20}$ $\frac{14}{4} \cdot \frac{20}{18} = \frac{35}{9}$

b) $2\frac{3}{7} \div 1\frac{1}{7}$ $\frac{17}{7} \cdot \frac{7}{8} = \frac{17}{8}$

6) Multiply the following fractions.

a) $\frac{28}{4} \times \frac{12}{7} = 12$

b) $3\frac{1}{8} * 6\frac{5}{8}$ $\frac{25}{8} \cdot \frac{53}{8} = \frac{1325}{64}$

Name: Key 1/19/2018 8th Grade – Quiz 14

1) Solve the following equations.

a) $\frac{2}{9}x = \frac{4}{12}$ $\quad x = 54$

b) $\frac{7}{11}x = \frac{3}{22}$ $\quad x = \frac{3}{2}$

2) Divide the following fractions.

a) $\frac{12}{5} \div \frac{16}{20} = \frac{20}{16} = \frac{5}{4}$

b) $-4\frac{3}{8} \div 2\frac{1}{8}$ $\quad -\frac{35}{8} \cdot \frac{8}{17} = \frac{-35}{17}$

3) Solve the following equations. Leave the fractions in your work.

a) $\frac{4}{7}x + 2 = \frac{9}{14}$ $\quad -2 \quad -2$

$\frac{9}{14} - \frac{28}{14}$ $\quad \frac{7}{4} \cdot \frac{4}{7}x = \frac{-19}{14} \cdot \frac{7}{4}$ $\quad x = \frac{-19}{8}$

b) $\frac{8}{3}x - \frac{3}{6} = \frac{7}{9} \cdot \frac{2}{2}$ $\quad +\frac{3}{6} \quad +\frac{3}{6} \cdot \frac{3}{3}$

$\frac{14}{18} + \frac{9}{18}$ $\quad \frac{3}{8} \cdot \frac{8}{3}x = \frac{23}{6} \cdot \frac{3}{5}$ $\quad x = \frac{23}{10}$

4) Solve the following equations by removing the fractions in your work.

a) $24 \cdot \left(\frac{1}{4}x + \frac{3}{8} = \frac{7}{12}\right)$ $\quad 6x = 5$

$6x + 9 = 14$ $\quad -9 \quad -9$ $\quad x = \frac{5}{6}$

b) $18 \cdot \left(\frac{8}{3}x - \frac{3}{6} = \frac{7}{9}\right)$ $\quad 48x - 9 = 14$

$48x = 23$ $\quad x = \frac{23}{48}$

5) Solve the following equations by removing the decimals in your work.

a) $2.13x + .25 = 24$

$213x + 25 = 2400$ $\quad -25 \quad -25$

$\frac{213x}{213} = \frac{2375}{213}$ $\quad x = \frac{2375}{213}$

b) $14.2x - 9.5 = 1.3$

$142x - 95 = 13$ $\quad +95 \quad +95$

$\frac{142x}{142} = \frac{108}{142}$ $\quad x = \frac{54}{71}$

Name: Key 2/2/2018 8th Grade – Quiz 16

1) Fill in the blank.

a) Quotient Rule: When dividing with the same base, you keep the base and subtract the exponents.

b) Product Rule: When multiplying with the same base, you keep the base and add the exponents

c) "Power to a power, you multiply the exponents"

2) Give the name or abbreviation of the following units.

a) mg milligram

b) hL hectoliter

c) picowatt pW

d) centimeter cm

3) Multiply/divide the following numbers. Write your answer in scientific notation.

a) $(7.54 * 10^{-2})(3.45 * 10^{9})$

26.01×10^{7}

2.601×10^{8}

b) $\frac{7.65*10^{-2}}{5.67*10^{4}}$ 1.349×10^{-6}

4) Write the following numbers in scientific notation.

a) 0.00462 4.62×10^{-3}

b) 64000 6.4×10^{4}

5) Write the following numbers in standard form.

a) $4.89 * 10^{5}$ 489000

b) $3.12 * 10^{-3}$ .00312

6) Multiply/divide the following expressions.

a) $2x^{-9} * 6x^{-14}$ $12x^{-23}$ $\frac{12}{x^{23}}$

b) $4x^{9}y^{3} * 3x^{2}$ $12x^{11}y^{3}$

7) Multiply/divide the following expressions.

a) $\frac{15x^{9}y^{5}}{20x^{4}y^{9}}$ $\frac{3x^{5}}{4y^{4}}$

b) $\frac{8x^{-6}y^{-5}}{4x^{-7}y^{-3}}$ $\frac{2x}{y^{2}}$

$-6--7=1$

$-5--3=-2$

Name: Key 2/8/2018 8th Grade – Quiz 17

1) Fill in the blanks for the questions you should ask/answer yourself when converting units.

1) Where are you going? I can switch.
2) Where are you starting?
3) How are you going to get there?
   a) Which one is bigger? (*always gets a 1)
   b) The smaller one gets the number on the line.

2) Give the name or abbreviation of the following units.

a) dJ decijoule | b) km kilometer

c) microsecond μsec | d) millijoule mJ

3) One Step Conversions

a) 0.0723 kJ to J $7.23\times10^{-2}\text{ kJ} \left| \frac{10^3\text{ J}}{1\text{ kJ}}\right.$ $7.23\times10^{1}\text{ J}$

b) 445 s to ms $4.45\times10^{2}\text{ s} \left| \frac{10^3\text{ ms}}{1\text{ s}}\right.$ $4.45\times10^{5}\text{ ms}$

4) Write the following numbers in scientific notation.

a) 0.0000462 4.62×10^{-5} | b) 6400000 6.4×10^{6}

5) Basic Conversions

a) 28.68 c to gal | b) 263500 weeks to days

6) Two Step Conversions

a) 936800 dm to Mm | b) 587.1 Mg to μg

7) Multiply/divide the following expressions.

a) $(4x^{-4}y^{5})^{-3}$ $\frac{x^{12}}{4^3y^{15}}$ | b) $(x^{6}y^{-8})^{5}$ $\frac{x^{30}}{y^{40}}$

28.68 c $\left|\frac{1\text{ pt}}{2\text{ c}}\right.\left|\frac{1\text{ qt}}{2\text{ pt}}\right.\left|\frac{1\text{ gal}}{4\text{ qt}}\right.$ $= 1.793\text{ gal}$

263500 weeks $\left|\frac{7\text{ day}}{1\text{ week}}\right.$ $= 1.845\times10^{6}\text{ days}$

936800 dm $\left|\frac{1\text{ m}}{10\text{ dm}}\right.\left|\frac{1\text{ Mm}}{10^6\text{ m}}\right.$ $= 9.368\times10^{-2}\text{ Mm}$

587.1 Mg $\left|\frac{10^6\text{ g}}{1\text{ Mg}}\right.\left|\frac{10^6\text{ μg}}{1\text{ g}}\right.$ $= 5.871\times10^{17}\text{ μg}$

Name: Key 2/16/2018 8th Grade – Quiz 18

1) Given the following formulas, identify what each letter represents and the unit that it is measured in.

$d = rt$	Description	Unit
d	distance	m
r	rate	m/s
t	time	sec
$W = Fd$	**********	**********
W	work	J
F	force	N
d	distance	m

r t

2) You drive 23m/sec for 170sec. How far have you gone?

$d = 23 \cdot 170 = 3910\text{m}$

d t

3) You need to drive 50m and only have 5min. How fast must you drive?

$\frac{5\text{ min}}{1}\left|\frac{60\text{ sec}}{1\text{ min}}\right. = 300\text{ sec}$ $\quad \frac{50}{300} = \frac{r \cdot 300}{300}$ $\quad r = 0.1667\text{ m/s}$

4) You need to drive 10,000ft and are travel at 30in/min. How long does it take you?

$\frac{10000\text{ ft}}{1}\left|\frac{12\text{ in}}{1\text{ ft}}\right.\left|\frac{2.54\text{cm}}{1\text{ in}}\right.\left|\frac{1\text{ m}}{100\text{ cm}}\right. = 3048\text{m}$ $\quad \frac{30\text{in}}{\text{min}}\left|\frac{2.54\text{cm}}{1\text{ in}}\right.\left|\frac{1\text{ m}}{100\text{ cm}}\right.\left|\frac{1\text{ min}}{60\text{ sec}}\right. = .0127\text{ m/sec}$

d

$3048 = (.0127)t$

$t = 240000\text{sec}$

5) You apply 500N to a box for 60m. How much work have you done?

F d

$W = 500 \cdot 60 = 30000\text{ J}$

6) You do 40kJ of work on a box but only move it 30cm. How much force did you apply?

$\frac{40\text{kJ}}{1}\left|\frac{10^3\text{ J}}{1\text{ kJ}}\right. = 40000\text{J}$ $\quad \frac{30\text{cm}}{1}\left|\frac{1\text{ m}}{100\text{ cm}}\right. = .3\text{m}$

$40000 = (.3)x$

$x = 133300\text{ N}$

Name: Key 3/2/2018 8th Grade – Quiz 20

Working in your pods, answer the following questions. Show your work in the table below.

	Mass/g	Percent
Wire	~~20.6g~~ 36.6g	~~36%~~ 64%
Insulation	~~36.6g~~ 20.6g	36%
Total:	57.2g	100%

1) Determine what percent of the wire is copper.

64%

2) What percent of the wire is insulation.

36%

3) West End Hide and Fur deducts 40% of the copper price for wire of this grade. Is that a good deal or bad deal? Explain.

~~Good~~ bad deal because the insulation is only 36%.

4) If copper costs $2 per pound, how much is your copper worth?

$$\frac{36.6g \left| \frac{1\ oz}{28.3g} \right| \frac{1\ lb.}{16\ oz}}{} = .081\ lb.$$

$$.081 \times 2 = \$0.16$$

Name: Key 3/16/2018 8th Grade – Quiz 21

1) Convert the following factions and decimals to percentages. Convert the following percentages to decimals. ~~Keep one decimal place in all your answers.~~

a) 7/8 .875 → 87.5%	b) ½ 50%	c) .00698 .698%
d) 89.6% .896	e) .472 47.2%	f) 2/3 66.7%

2) Find the percent of change in the following problems. Keep one decimal place in all your answers

a) 45 is increased to 64

$\frac{64-45}{45} = 42.2\%$

b) Milk priced went from \$3.67 to \$4.25

$\frac{4.25-3.67}{3.67} = 15.8\%$

3) Answer the following questions about percentages. Remember the three different types of percent questions we talked about.

a) What is 9% of 20?

$X = .09 \times 20$

$= 1.8$

b) 45 is what percent of 50?

$\frac{45}{50} = \frac{X \cdot 50}{50}$ $X = 90\%$

c) 10 is 60% of what number?

$\frac{10}{.6} = \frac{.6 \cdot X}{.6}$ $X = 16.7$

4) Fill in the missing blanks in the following problems.

a) Total Sales: \$300 $\times .08 = 24$
Tax Rate: 8%
Tax: \$ 24
Total: \$ 324

b) Original Price: \$500 $\times .3 = 150$
Markup rate: 30%
New Price: \$ 650

5) If you rolled two dice 12 times with the following results, what is the experimental probability of rolling each of the following sums? Give your answers as percentages.

9 | 8 | 11 | 10 | 9 | 7 ✓ | 8 | 11 | 5 | 6 | 2 | 8

	Sums					
	3	5	7	9	11	Evens
Experimental Probability	$\frac{0}{12} = 0\%$	$\frac{1}{12} = 8.3\%$	$\frac{1}{12} = 8.3\%$	$\frac{2}{12} = 16.7\%$	$\frac{2}{12} = 16.7\%$	$\frac{6}{12} = 50\%$

6) If you were going to roll two dice, what is the *Theoretical Probability* of rolling each of the following sums?

	Sums (1,4, 2,3 / 1,6 2,5 3,4 / 3,6 4,5 5,6)					
	3	5	7	9	11	Evens
Theoretical Probability	$\frac{2}{36} = 5.6\%$	$\frac{4}{36} = 11.1\%$	$\frac{6}{36} = 16.7\%$	$\frac{4}{36}$ 11.1%	$\frac{2}{36}$ 5.6%	$\frac{18}{36} = 50\%$

Bonus* Why is there a difference between 5 & 6?

number of times you rolled it. The more times you roll, the closer the experimental prob. will be to the Theoretical.

Name: Key 3/29/2018 8th Grade – Quiz 23

1) What does it mean to be complementary and supplementary?

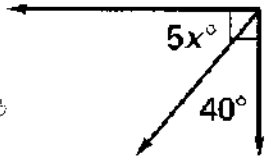
2 angle add to 90° → 2 angle added 180°

2) Given the following angles, find an angle that is complementary, another angle that is supplementary to it, and one angle that is neither complementary or supplementary to it..

	Complementary	Supplementary	Neither
a) 35°	55°	145°	50°
b) 89°	1°	91°	98°

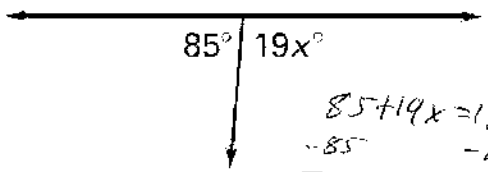
3) Solve for x in each of the following problems.

a)



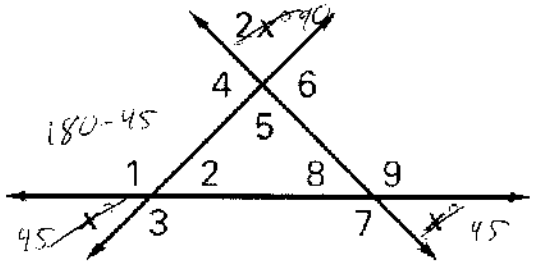
$5x + 40 = 90$
$-40 \quad -40$
$x = 10$

b)



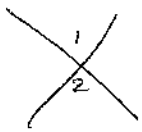
$85 + 19x = 180$
$-85 \quad -85$
$19x = 95$
$x = 5$

4) In the following shape, $x = 45°$. What are all the other angles?



1	2	3	4	5	6	7	8	9
135°	45°	135°	90°	90°	90°	135°	45°	135°

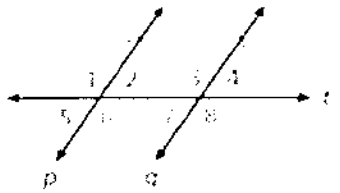
5) Draw a picture that shows vertical angles. Label a pair of angles that are considered vertical.



$\angle 1 \cong \angle 2$.

Name: 4/6/2018 8th Grade – Quiz 24

Use the following picture to answer the questions on the quiz.



1) Find the missing angles given the following information.

a) $m\angle 2 = 155°$, $m\angle 3 = ?$ $25°$ $180-155$

b) $m\angle 1 = 60°$, $m\angle 8 = ?$ $60°$

2) Solve for x using the angles of the above picture:

a) $m\angle 5 = x + 4$, $m\angle 7 = 2x - 29$ $x+4 = 2x-29$ $-x+29 \quad -x+29$ $33 = x$ 33

b) $m\angle 6 = x$, $m\angle 7 = 2x + 30$ $x + 2x + 30 = 180$ $3x = 150$ $x = 50$

3) Circle all the answers below that are true from the picture above.

a) $\angle 1 \cong \angle 3$
b) $\angle 2 \cong \angle 3$
c) $\angle 5 \cong \angle 4$
d) $\angle 1 \cong \angle 4$
e) $\angle 8 \cong \angle 3$
f) $\angle 1 \cong \angle 8$
g) $\angle 2 \cong \angle 7$
h) $\angle 2$ and $\angle 3$ are supplemental
i) $\angle 6$ and $\angle 3$ are supplemental
j) $\angle 7$ and $\angle 3$ are supplemental
k) $\angle 7$ and $\angle 2$ are supplemental
l) $\angle 6$ and $\angle 7$ are supplemental

4) Match the following angles with their proper description using the picture from above.

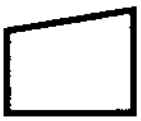
E a) $\angle 1$ and $\angle 3$
C b) $\angle 2$ and $\angle 3$
B c) $\angle 5$ and $\angle 4$
D d) $\angle 1$ and $\angle 4$
E e) $\angle 8$ and $\angle 3$
B f) $\angle 1$ and $\angle 8$
A g) $\angle 2$ and $\angle 7$
C h) $\angle 6$ and $\angle 7$

A. Alternate Interior Angles
B. Alternate Exterior Angles
C. Same-side Interior angles
D. Same-side Exterior angles
E. Corresponding Angles
F. Vertical Angles
G. None of these

5) Find the sum of the interior angles for the following shapes.

a) octagon 8 $(8-2)180$ $1080°$

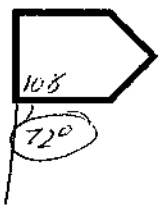
b) $360°$



6) The following shapes are regular. Find an exterior angle.

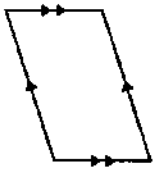
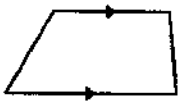
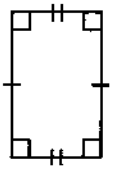
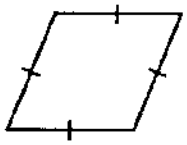
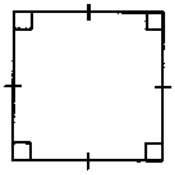
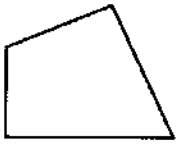
a) triangle

b) $(5-2)180$ 5



Name: 4/13/2018 8th Grade – Quiz 25

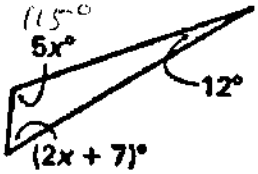
1) Classify the following as a quadrilateral, parallelogram, rhombus, trapezoid, rectangle, or square.

 parallelogram	 trapezoid
 rectangle	 rhombus
 square	 quadrilateral

2) Find all the angles of the following triangle. Classify it as either acute, obtuse, or right.

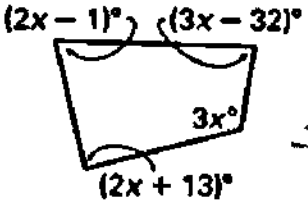
$2x+7+5x+12=180$

$x=23$

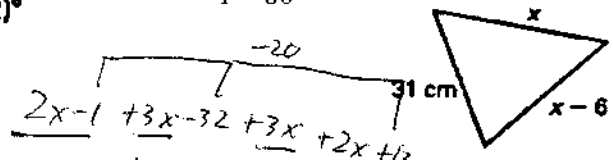


53°

3) Solve for x.



P = 80



$2x-1+3x-32+3x+2x+13=360°$

$10x=380$

$x=38$

$x+x-6+31=80$

$2x=55$

$x=27.5$

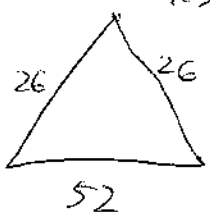
4) The ratio of the sides of a triangle is 4:4:8. The perimeter of the triangle is 104ft. Find the side lengths. The classify the triangle as equilateral, isosceles, or scalene.

$4x+4x+8x=104$

$16x=104$

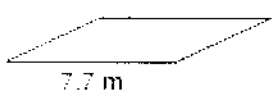
$x=6.5$

isosceles

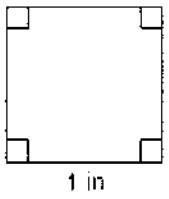


Name: Key 4/20/2018 8th Grade – Quiz 26

1) Calculate the area for each of the following quadrilaterals.

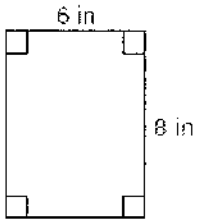


$7.7 \times 2 = 15.4 m^2$

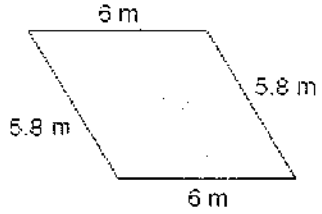


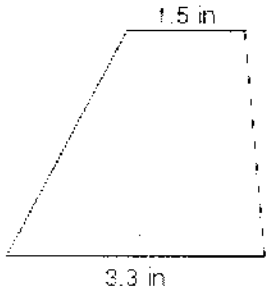
$1 in^2$

$6 \times 8 = 48 in^2$



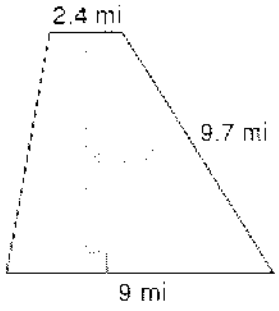
$5 \times 6 = 30 m^2$





$\frac{1}{2}(1.5+3.3) \cdot 2.9$

$6.96 in^2$



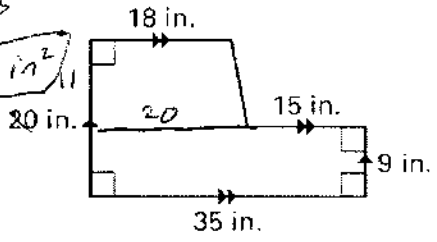
$\frac{1}{2}(2.4+9) \cdot 8.2$

$46.74 m^2$

2) Find the area of the following shape.

$\frac{1}{2}(18+20) \cdot 11 + 9 \cdot 35$

$209 + 315 = 524 in^2$



3) I measured the circumference of a circle to be 25.12cm and the diameter to be 8.

a) What is the circumference divided by the diameter? 3.14

b) What is the radius of the circle? 4

c) From (a), what is that number called?

pi

π