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Math 8

Period: _____ Date: _____

Final Review EXPONENTS, ANGLES, PYTHAGOREAN THEOREM

Exponents

- 1) When simplified the expression: $\frac{6x^2y^3}{3x^2y^4}$ is equivalent to:

a) $\frac{2x}{y}$

b) $\frac{2y}{x}$

c) $\frac{2}{y}$

d) $2y$

Top heavy?
bottom heavy?

$$\frac{26x^2y^3}{18x^2y^4} = \frac{2}{y}$$

- 2) The diameter of a red blood cell is approximately 0.0007 cm. What is this number in scientific notation?

a) 7×10^4

b) 7×10^3

c) 7×10^{-3}

d) 7×10^{-4}

Big or Small #

$$7 \times 10^{-4}$$

- 3) Which solution is equivalent to $\frac{2^6 \times 2^{-4}}{2^7}$?

$$\frac{2^2}{2^7}$$

Bottom heavy
 $\frac{1}{2^5} = \frac{1}{32}$

a) $\frac{1}{32}$

b) $\frac{1}{16}$

c) 16

d) 32

- 4) In 1943 the population of Washington D.C. was 900,000. In 2011 the population declined to 6.18×10^5 . Expressed in scientific notation, how many less people live in Washington DC in 2011 compared to 1943?

a) 282,000

b) 28.2×10^5

c) 2.82×10^4

d) 2.82×10^5

$$\begin{array}{r} 89,000 \\ - 618,000 \\ \hline 282,000 \end{array}$$

$$2.82 \times 10^5$$

- 5) Represented in simplest form, the product of $4x^2y$ and $2xy^3$ is:

a) $6x^2y^3$

b) $8x^3y^3$

Multiply

c) $8x^3y^4$

d) $8x^2y^4$

$$8x^3y^4$$

- 6) When simplified the expression $(3.1 \times 10^5) + (5.8 \times 10^4)$ equals:

a) 8.9×10^4

b) 8.9×10^5

c) 3.68×10^4

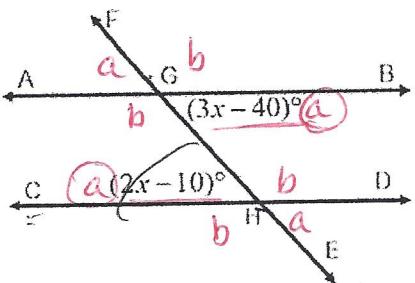
d) 3.68×10^5

$$\begin{array}{r} 3.1 \times 10^5 \\ + 5.8 \times 10^4 \\ \hline 3.68 \times 10^5 \end{array}$$

$$3.68 \times 10^5$$

- 4) In the figure below, $\angle BGH = 3x - 40$ and $\angle CHG = 2x - 10$. Find the measure of $\angle CHG$?

$$x = a$$

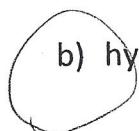


- a) 28°
b) 30°
c) 46°

$$\begin{aligned} 3x - 40 &= 2x - 10 \\ +40 &\quad \underline{+40} \\ 3x &= 2x + 30 \\ -2x &\quad \underline{-2x} \\ x &= 30 \\ 2(30) - 10 &= 50 \\ 60 - 10 &= 50 \end{aligned}$$

- 5) In a right triangle, which has the longest value?

a) base

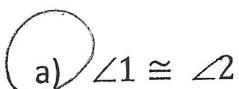


b) hypotenuse

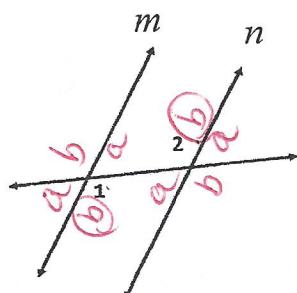
c) leg

d) height

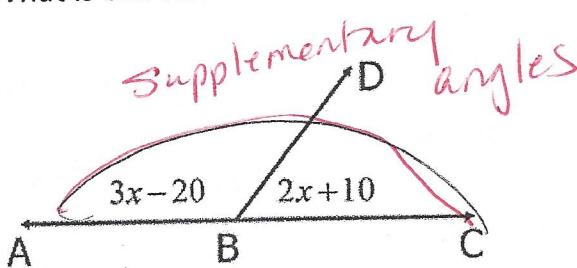
- 6) In the figure below, line m and line n are parallel. What statement about $\angle 1$ and $\angle 2$ must be true?



- a) $\angle 1 \cong \angle 2$
b) $\angle 1$ is a complement to $\angle 2$
c) $\angle 1$ is a supplement to $\angle 2$
d) $\angle 1$ and $\angle 2$ are adjacent angles.



- 7) What is the value of x ?



- a) 38

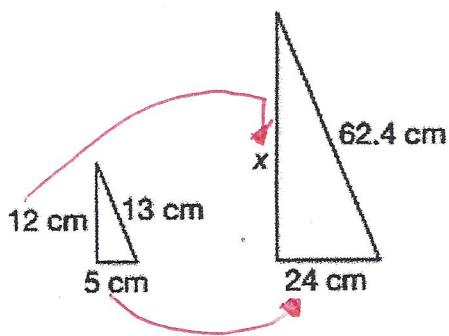
- b) 30

- c) 20

- d) 74

$$\begin{aligned} 5x - 10 &= 180 \\ +10 &\quad \underline{+10} \\ 5x &= 190 \\ \div 5 &\quad \underline{\div 5} \\ x &= 38 \end{aligned}$$

- 3) The triangles in the figure below are similar. Find the value of x.



a) 24 cm

b) 48 cm

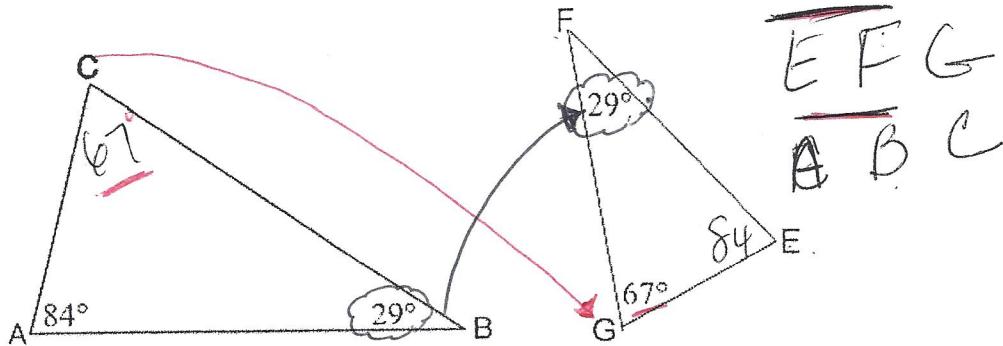
c) 57.6 cm

d) 67.6 cm

$$5x = 288$$

~~Similar~~ ~~12~~ = ~~5~~ ~~x~~ ~~24~~
Big A ~~12~~ ~~x~~ ~~24~~ Small A ~~5~~

- 4) The triangles below are similar triangles. Which side of $\triangle EFG$ corresponds to side \overline{AB} ?



a) \overline{AC}

b) \overline{EG}

c) \overline{FG}

d) \overline{EF}

- 5) Which equation could be used to solve for x?

$$\begin{aligned} 15x + 22x + 9 &= 180 \\ -9 &\quad -9 \\ 37x &= 111 \\ \frac{37}{37}x &= \frac{111}{37} \end{aligned}$$

a) $15x + 22x + 9 = 180^\circ$

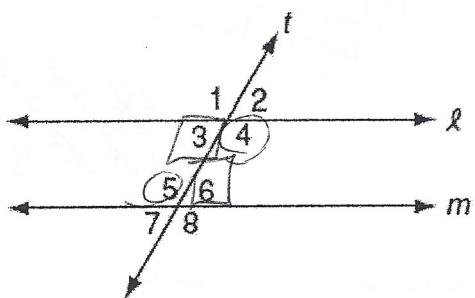
c) $15x + 22x + 9 + 120^\circ = 180^\circ$

b) $22x + 9 = 15x + 120$

d) $15x + 22x + 9 = 120^\circ$

Angles

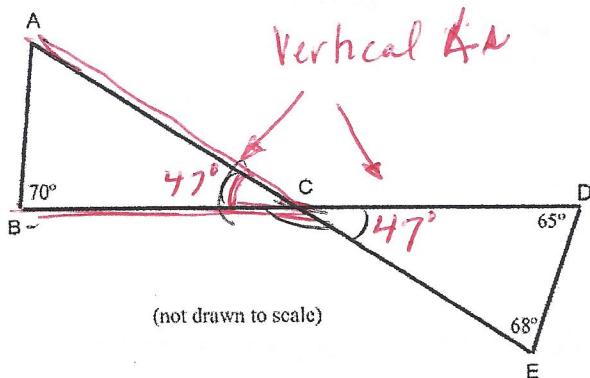
- 1) In the accompanying diagram, line l is parallel to line m , and line t is a transversal.
 Which pair represents *alternate interior angles*?



- a) $\angle 1$ and $\angle 5$
- b) $\angle 3$ and $\angle 6$**
- c) $\angle 4$ and $\angle 6$
- d) $\angle 1$ and $\angle 4$

- 2) What is the measure of $\angle BCA$?

a) 42°



b) 47°

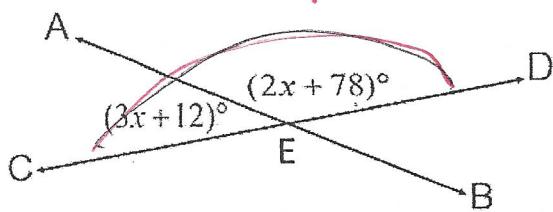
c) 65°

d) 68°

$$\begin{array}{r}
 65 \\
 68 \\
 \hline
 133 \\
 180 \\
 \hline
 47
 \end{array}$$

- 3) In the accompanying diagram, lines AB and CD intersect at point E. If the $m \angle AEC = 3x + 12$ and $m \angle AED = 2x + 78$, what is the value of x ?

Supplementary angles



a) 6

b) 12

c) 18

d) 24

$$5x + 90 = 180$$

$$5x = 90$$

$$x = 18$$