

1) Simplify:

a)  $(4h^2 - 9h + 2) - (-2h^2 + 4h - 12)$   
 $6h^2 - 13h + 14$

b)  $\frac{15y^3 - 40y^2 + 5y}{5y}$   
 $3y^2 - 8y + 1$

2) Solve and graph:

$9m + 10 > 100$   
 $9m > 90$   
 $m > 10$

$\leftarrow \frac{1}{9} \text{ (arrow)} \rightarrow$   
 $\frac{0}{10}$

3) A computer can perform  $4.5 \times 10^2$  instructions in a second. How long, in seconds, would it take to perform  $1.8 \times 10^{10}$  instructions? Write your answer in scientific notation.

$\frac{4.5 \times 10^2}{1} = \frac{1.8 \times 10^{10}}{x}$   
 $(4.5 \times 10^2) \times x = 1.8 \times 10^{10}$   
 $x = \frac{1.8 \times 10^{10}}{4.5 \times 10^2}$   
 $x = .4 \times 10^8$   
 666,666.6 min  
 11,111.1 hours  
 40000000 seconds

4) Simplify:

a)  $6^{-2}$       b)  $(a^2)(a^{10})$   
 $\frac{1}{36}$        $a^{12}$

c)  $\frac{-35n^7}{-5n^3}$       d)  $n + n + n$   
 $7n^4$        $3n$

5) Determine the slope and the y-intercept in the equation:

$y - 3x = 6$   
 $y = 3x + 6$

slope 3 y intercept 6

6) a) Determine the equation for the table below.  $y = 4x - 59$

x	13	14	15	16
y	-7	-3	1	5

$\frac{\Delta y}{\Delta x} = \frac{4}{1}$        $-7 = 4(13) + b$   
 $-7 = 52 + b$   
 $-59 = b$

b) Referring to # 5 and #6, state the equation that has the greater rate of change. # 6

7) In a right triangle, one leg is 12 cm long. The hypotenuse is 20 cm long. Find the length of the other leg to the nearest tenth of a cm.

$12^2 + b^2 = 20^2$   
 $b^2 = 400 - 144$   
 $b = \sqrt{256}$   
 $b = 16.0 \text{ cm}$

8) a) Factor  $14h^2 - 4h + 2$  using GCF.  
 $2(7h^2 - 2h + 1)$

b) Factor  $h^2 + 3h - 4$   
 $(h+4)(h-1)$

9) Find x and the measure of each angle.

$x + 15 = 2x - 100$   
 $115 = x$

$\{ 130^\circ, 130^\circ \}$

10) Solve and check:

$m + 6 = 5m + 30$

$-24 = 4m$   
 $-6 = m$

Check:  
 $-6 + 6 = 5(-6) + 30$   
 $0 = -30 + 30$   
 $0 = 0$

11) Check #10.

12) Find the slope of the line between points (5, 7) and (2, 1).

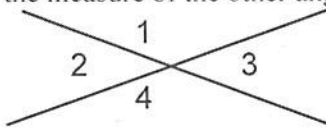
$m = \frac{\Delta y}{\Delta x} = \frac{1-7}{2-5} = \frac{-6}{-3} = 2$

13) ROUND each expression to the nearest hundredth:

a)  $\sqrt{200}$   $14.142 \approx 14.14$

b)  $\sqrt{98}$   $9.899 \approx 9.90$

14) If the measure of  $\angle 1$  is  $125^\circ$ , find the measure of the other angles.



$m\angle 4 = 125$   
 $m\angle 2 = m\angle 3 = 55$

15) Give the rules for a counter clockwise rotation of:  $R_{90}$

a)  $90^\circ$   $(x, y) \rightarrow (-y, x)$

b)  $180^\circ$   $(x, y) \rightarrow (-x, -y)$

16) Name the transformation shown in each diagram below. Choose from reflection, rotation, translation or dilation.

a)

dilation ( $D_2$ )

b)

translation 1 up 3  
 $T_{1,3}$

c)

reflection  $r_y$

d)

rotation  $R_{180}$

17) Name the series of transformations to get from triangle GHF to triangle NPM.

reflection, translation