1) Order of Operations: PEMDAS

Evaluate using PEMDAS.

a) $8-[19-(2+5)-7]$ b) $2+7\times11-12\div3$ c) $(3+7)\div(7-12)$

Evaluate the following expressions involving variables.

d) $\dfrac{4x}{9x^2-3x+1}$ when $x=2$. e) $\dfrac{z^2}{z-x}+\dfrac{x^2}{x-y}$ when $x=1$, $y=-2$, and $z=4$.

f) $\dfrac{4xy}{y^2-x^2}$ when $x=3$ and $y=2$. g) $\dfrac{x^2-z^2}{xz-2x(z-x)}$ when $x=-1$ and $z=3$.

2) Solve Multi-Step Equations

a) $5n-16-8n=-10$ b) $-34=v+42-5v$ c) $x-1+5x=23$

d) $42j+18-19j=-28$ e) $-49=6c-13-4c$ f) $-28+15-22z=31$

g) $-q-11=2q+4$ h) $4t+9=-8t-13$ i) $22p+11=4p-7$

3) Students will be able to graph points and find the slope given two points.

Points can be identified by ordered pairs, written (***x***, ***y***). The ***x***-coordinate is positive in Quadrants I and IV; the ***y***-coordinate is positive in Quadrants I and II. The slope of a line can be calculated as

$$m=\frac{y_2-y_1}{x_2-x_1}$$

Find the slope of the line that passes through each pair of points.

a) (4, 5), (6, 2) **b)** (3, 8), (7, 3) **c)** (8, –4), (–6, –3) **d)** (–2, –3), (6, 5)

4) Write an equation of a line in slope-intercept form: *y = mx + b*

Write an equation of a line with the given slope *m* and *y*-intercept *b*.

a) $m=-1$, $b=3$ **b)** $m=4$, $b=-2$ **c)** $m=-5$, $b=-8$

5) Write an equation of a line using point-slope form: $y-y_1=m(x-x_1)$

Write an equation of the line in slope-intercept form through the given point and with the given slope *m*.

a) (2, 1); $m=3$ **b)** (–3, –5); $m=-2$ **c)** (–4, 11); $m=\dfrac{3}{4}$ **d)** (0, –3); $m=-\dfrac{2}{3}$

Write an equation in point-slope form of the line that passes through the given points.

e) (2, 6) and (–4, –2) **f)** (–1, 3) and (–3, 1) **g)** (2, 8) and (–3, 6)

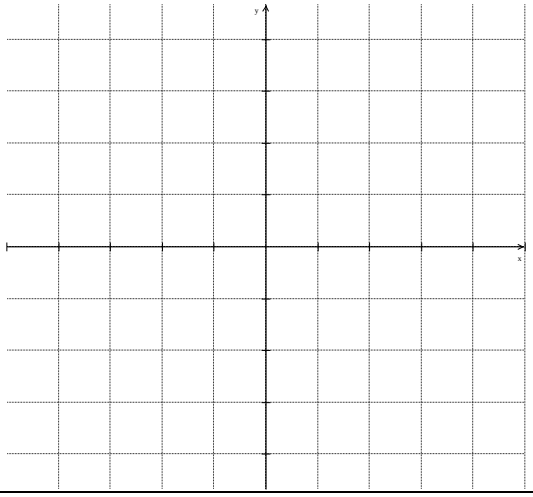
6) Students will be able to graph points and lines on a coordinate plane

Points can be identified by ordered pairs, written (***x***, ***y***).

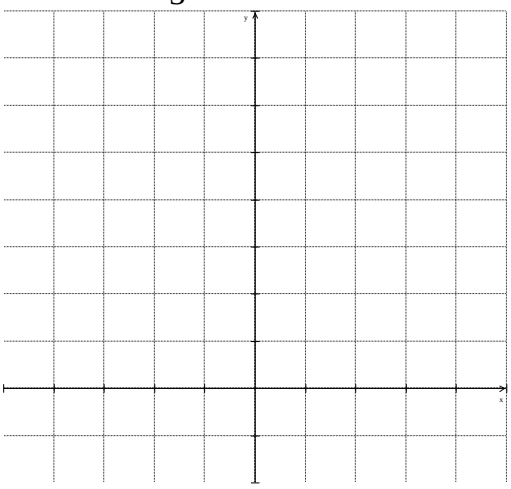
A line in slope-intercept form **(*y* = *mx* + *b*)** can be graphed by graphing the ***y***-intercept first, and then following the slope to another point. Lines with positive slopes rise to the right; lines with negative slopes fall to the right.

Horizontal lines have the form ***y* = *b*** while vertical lines have the form ***x* = *a***, where ***a*** is a constant.

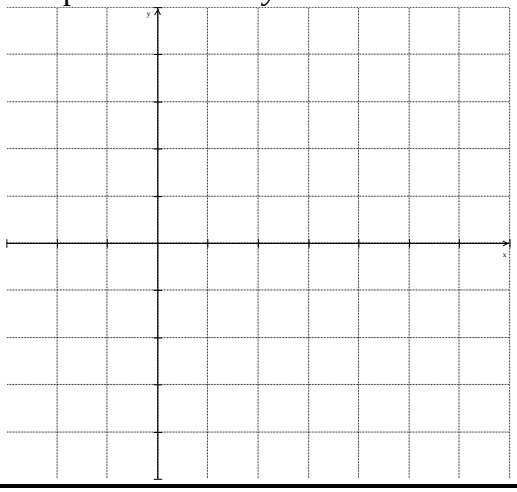
a) Graph the points:
$A(2, -3)$; $B(0, 3)$; $C(-1, -4)$



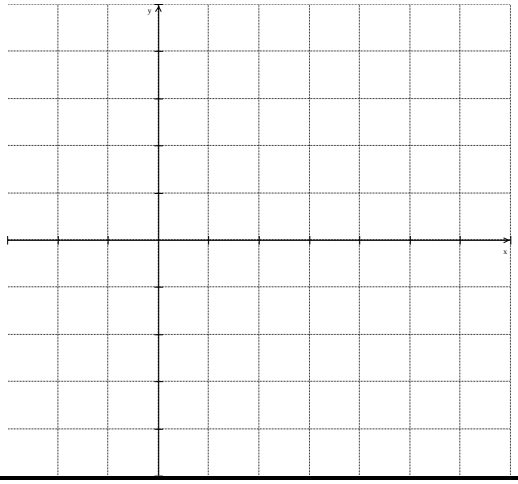
b) Graph: $y = \frac{-2}{3}x + 5$



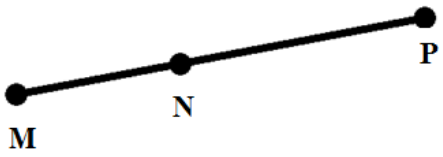
c) Graph: $x = 4$ and $y = -2$



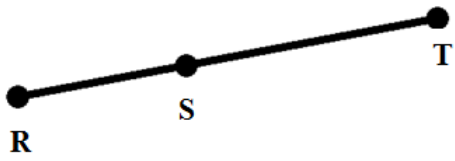
d) Graph: $y = 2x - 1$



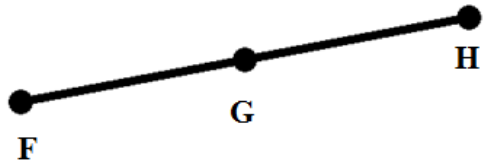
7) Find x and MN if N is between M and P, $MP = 60$, $MN = 6x - 7$, and $NP = 2x + 3$.



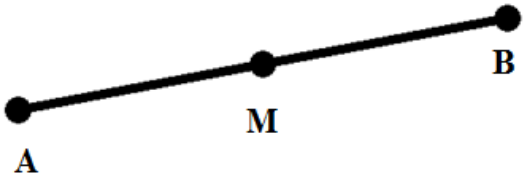
8) Find x and RS if S is between R and T, $RS = x + 3$, $ST = 5x$, and $RT = 57$.



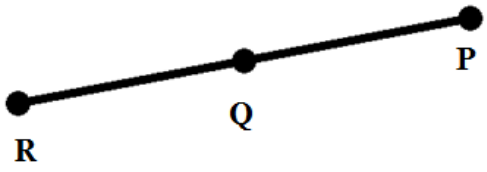
9) If G is the midpoint of FH and $FG = 12x - 5$ and $GH = 7x + 10$; find FH.



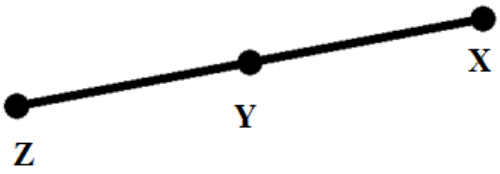
10) If M is the midpoint of AB and $AM = 4x + 11$ and $MB = 6x + 5$; find AB.

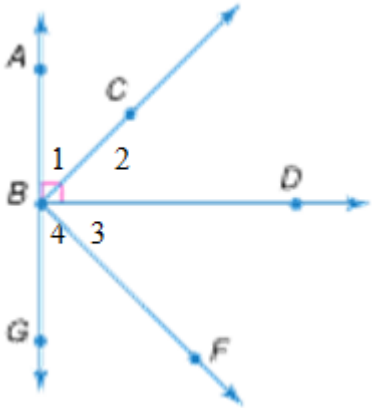


11) If Q is the midpoint of PR and $QR = 3x - 2$ and $PR = 5x + 3$; find PQ.



12) If Y is the midpoint of XZ and $YZ = 19$ and $XZ = 8x + 14$; find XZ.





Use the figure to the left:

13) Find the measure of $\angle 1$ if $\angle 1 = 9x + 5$ and $\angle 2 = 3x + 1$.

14) Find the measure of $\angle 4$ if $\angle 3 = 3x + 10$ and $\angle 4 = x$.

15) If angles 2 and 3 are complementary, find x when $\angle 2 = 4x - 5$ and $\angle 3 = 2x + 5$.

Use the figure to the right (FB bisects $\angle AFC$):

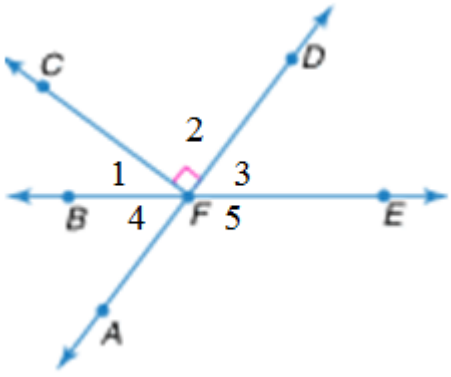
16) Name a pair of acute, vertical angles.

17) If $m\angle 1 = 4x + 15$ and $m\angle 4 = 6x - 5$, find $m\angle 1$.

18) If $m\angle 1 = 9x + 3$ and $m\angle 4 = 3x - 9$, find $m\angle 4$.

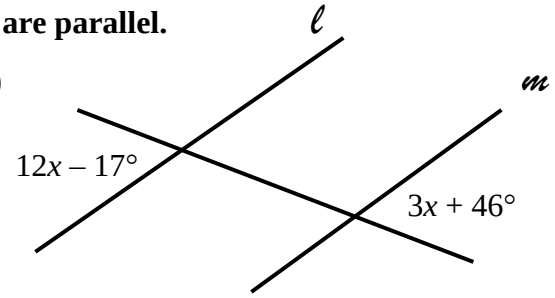
19) If $m\angle 2 = 5x + 10$, find x.

20) Angles 3 and 5 are a linear pair. They are also _____ .

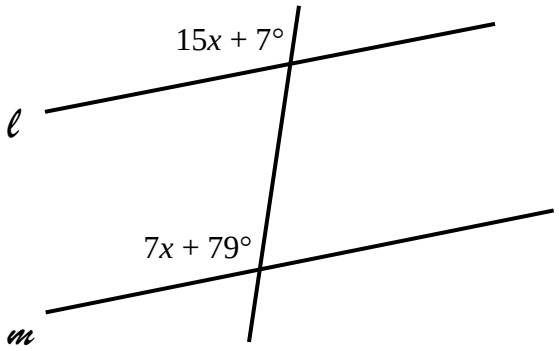


Problems #21 – 28: Find x such that lines ℓ and m are parallel.

21)

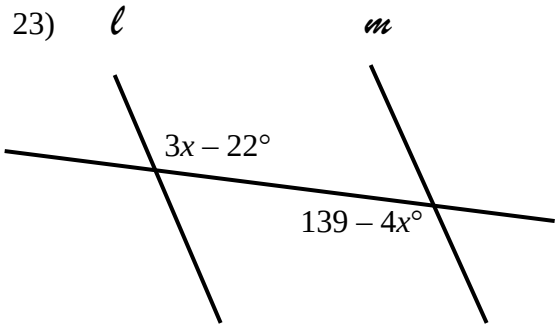


22)



2016 Summer Integrated Math 2

23)



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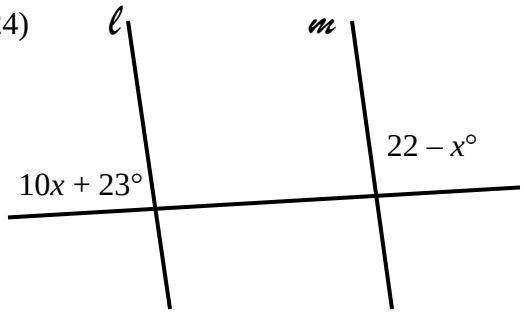

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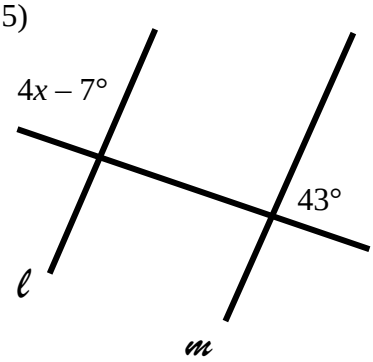
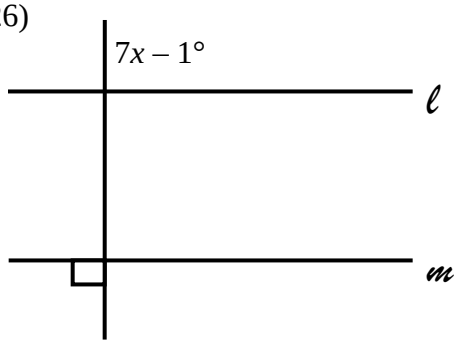
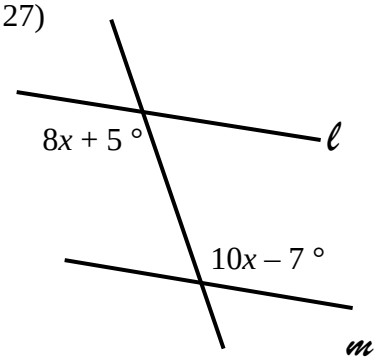


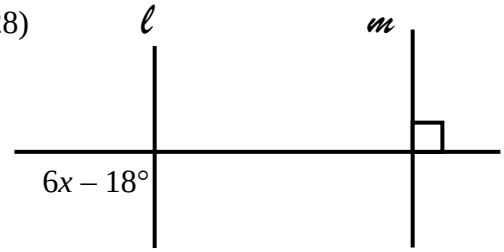
26)



27)

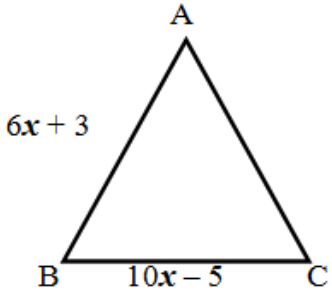


28)

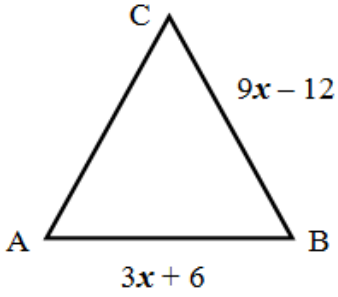


Find the perimeter of each triangle.

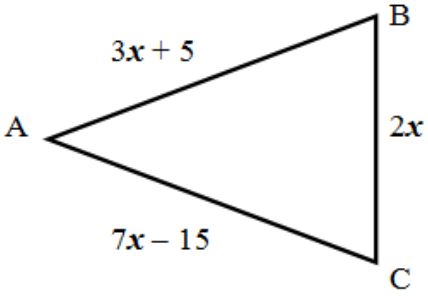
29) ΔABC is equilateral.



30) ΔABC is equilateral.

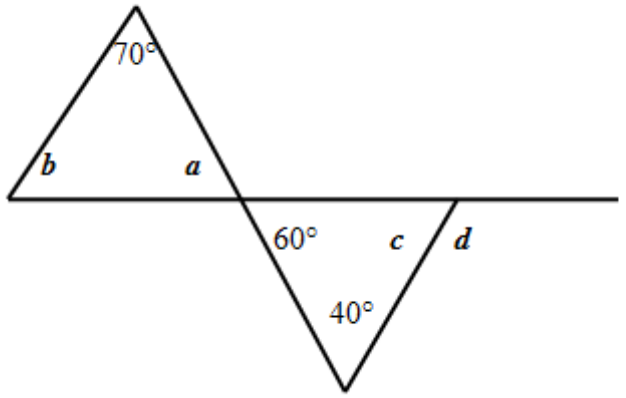


31) AB = AC

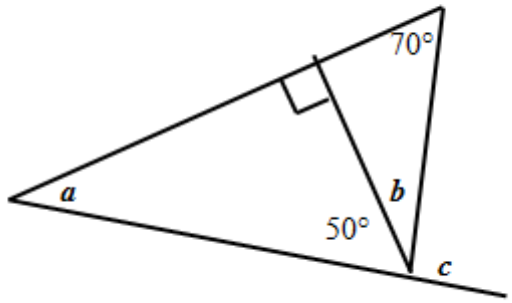


Find each angle measure: *a*, *b*, *c*, *d*, *e*, or *f* if necessary.

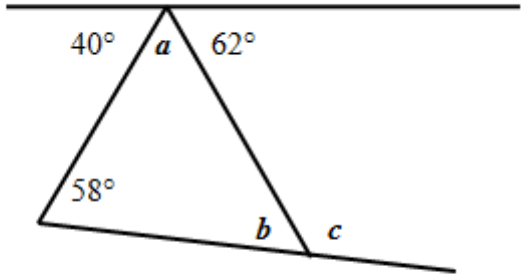
32)



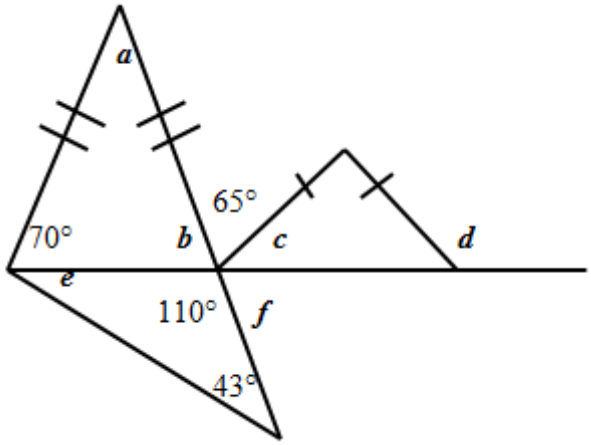
33)



34)

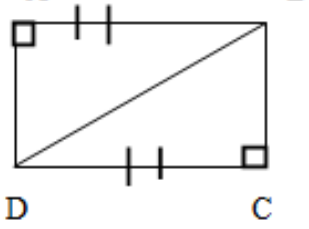


35)



The triangles are congruent. Name the postulate by which the triangles are congruent and complete the congruence statement.

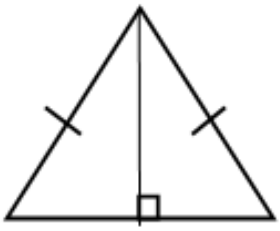
36)



post _____

ΔABD ≅ _____

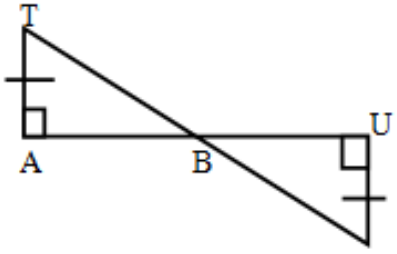
37)



post _____

ΔABC ≅ _____

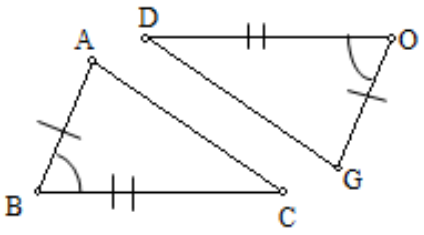
38)



post _____

ΔBAT ≅ _____

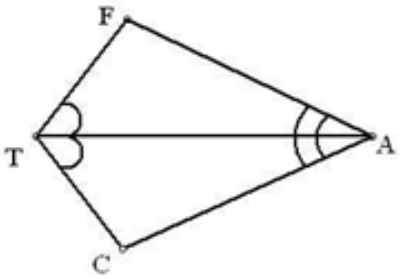
39)



post _____

ΔABC ≅ _____

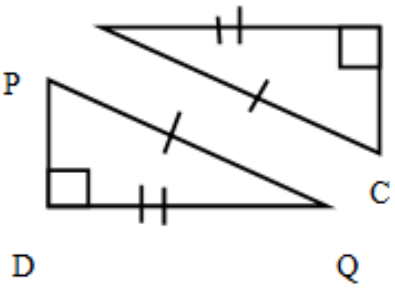
40)



post _____

ΔFAT ≅ _____

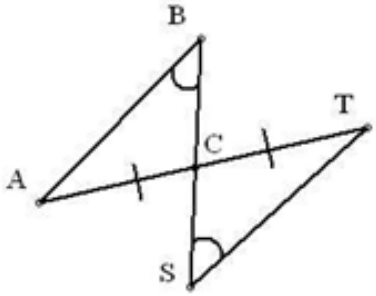
41) A B



post _____

ΔABC ≅ _____

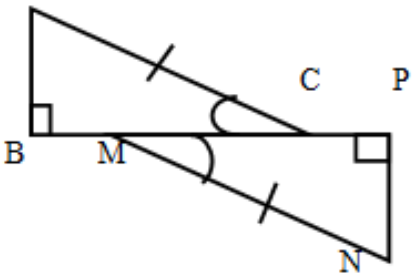
42)



post _____

ΔABC ≅ _____

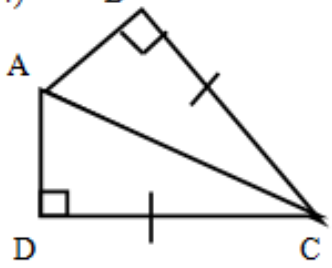
43) A



post _____

ΔABC ≅ _____

44) B

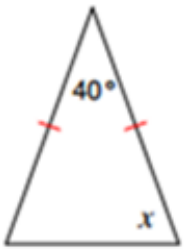


post _____

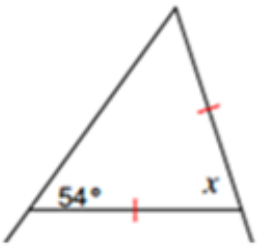
ΔABC ≅ _____

Find the value of *x*.

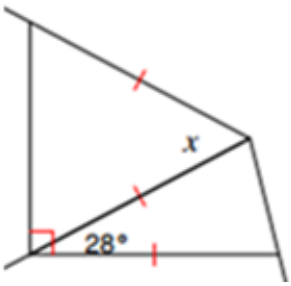
45)



46)

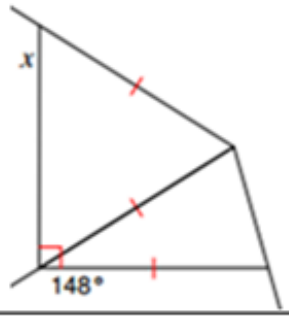


47)

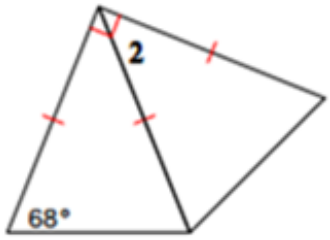


2016 Summer Integrated Math 2

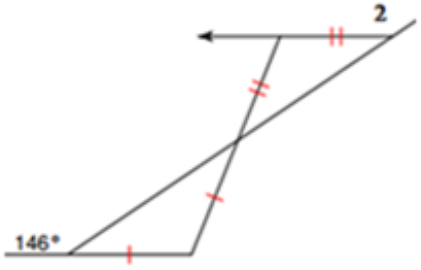
48)



49) $m\angle 2 = 4x - 2$



50) $m\angle 2 = 13x + 3$



ANSWERS

1a) 3
b) 75
c) -2
d) $8/31$
e) $17/3$
f) $24/-5$
g) $-8/5$

2a) -2
b) 19
c) 4
d) -2
e) -18
f) -2
g) -5
h) $-11/6$
i) -1

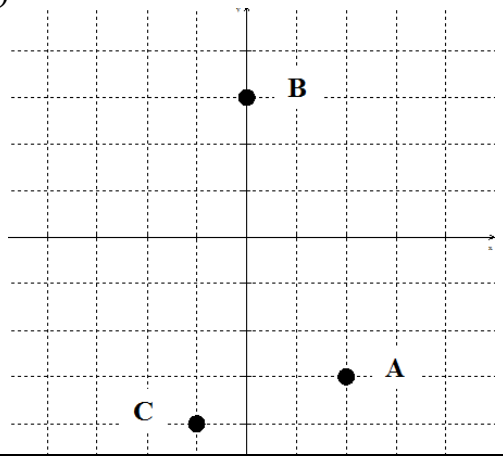
3a) $3/-2$
b) $5/-4$
c) $-1/14$
d) 1

4a) $y = -x + 3$
b) $y = 4x - 2$
c) $y = -5x - 8$

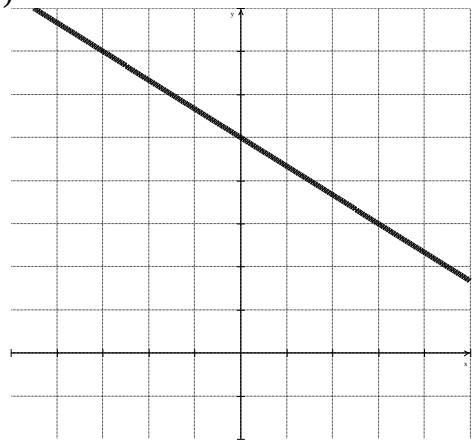
5a) $y - 1 = 3(x - 2)$
$y = 3x - 5$
b) $y + 5 = -2(x + 3)$
$y = -2x - 11$
c) $y - 11 = \frac{3}{4}(x + 4)$
$y = \frac{3}{4}x + 14$

d) $y + 3 = \frac{-2}{3}(x - 0)$
$y = \frac{-2}{3}x - 3$
e) $m = 4/3$
$y - 6 = \frac{4}{3}(x - 2)$
f) $m = 1$
$y - 3 = (x + 1)$
g) $m = 2/5$
$y - 8 = \frac{2}{5}(x - 2)$

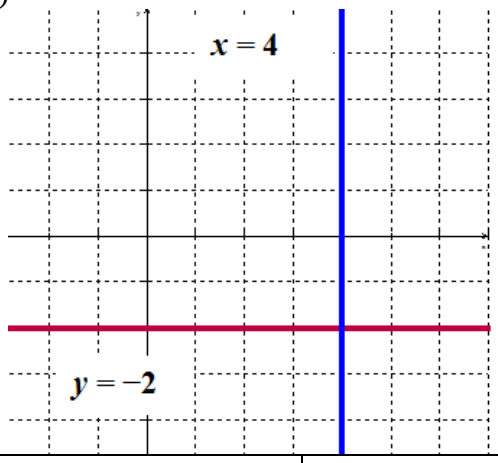
6a)



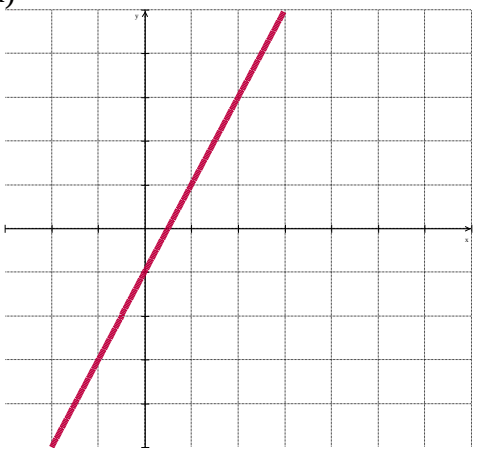
6b)



6c)



6d)



7) $x = 8,\ MN = 41$
8) $x = 9,\ RS = 12$
9) $x = 3,\ FH = 62$
10) $x = 3,\ AB = 46$
11) $x = 7,\ PQ = 19$
12) $x = 3,\ XZ = 38$
13) $x = 7,\ \angle 1 = 68°$
14) $x = 20,\ \angle 4 = 20°$
15) $x = 15$
16) $\angle 3$ and $\angle 4$
17) $x = 8,\ \angle 1 = 47°$
18) $x = 8,\ \angle 4 = 15°$
19) $x = 16$
20) Supplementary
21) $x = 7$
22) $x = 9$
23) $x = 23$
24) $x = 15$
25) $x = 36$

26) $x = 13$
27) $x = 6$
28) $x = 18$
29) $x = 2,$ Per = 45
30) $x = 3,$ Per = 45
31) $x = 5,$ Per = 50
32) $a = 60°,\ b = 50°,\ c = 80°,\ d = 100°$
33) $a = 40°,\ b = 20°,\ c = 110°$
34) $a = 78°,\ b = 44°,\ c = 136°$
35) $a = 40°,\ b = 70°,\ c = 45°,\ d = 135°,\ e = 27°,\ f = 70\Im°$

36) LA $\Delta ABD \cong \Delta CDB$
37) AAS or HA $\Delta ABC \cong \Delta ADC$
38) LA or AAS $\Delta BAT \cong \Delta BUG$
39) SAS $\Delta ABC \cong \Delta GOD$
40) ASA $\Delta FAT \cong \Delta CAT$
41) HL $\Delta ABC \cong \Delta QDF$
42) AAS $\Delta ABC \cong \Delta TSC$
43) AAS $\Delta ABC \cong \Delta NPM$
44) HL $\Delta ABC \cong \Delta ADC$
45) $x = 70°$
46) $x = 72°$
47) $x = 56°$
48) $x = 122°$
49) $x = 12°$
50) $x = 146°$