

Bell Ringer

Friday 12/14

Convert each function to vertex form and identify the vertex.

1. $f(x) = x^2 + 4x + 1$ Vertex: $(-2, -3)$

$$\frac{-(4)}{2(1)} = -\frac{4}{2} = -2$$

$$y = (x + 2)^2 - 3$$

2. $f(x) = x^2 - 8x + 5$ Vertex: $(4, -11)$

$$\frac{-(-8)}{2(1)} = \frac{8}{2} = 4$$

$$y = (x - 4)^2 - 11$$

3. Write the equation of an absolute value function that is shifted left 3, reflects over the y-axis and has a vertical stretch of 5.

$$y = 5|-x + 3|$$

4. Write the equation of a quadratic function that reflects over the x-axis, is shifted right 1 and up 9.

$$y = -(x - 1)^2 + 9$$

6.1A Algebraic Proofs ws due Monday

Questions???

Name: _____ Hour: _____

6.1 A Algebraic Proofs

Give the reason for each statement in the following two-column proof.

1. Given: $3x + 6 = 7x - 2$
 Prove: $x = 2$

Statements	Reasons
1. $3x + 6 = 7x - 2$	1. _____
2. $6 = 4x - 2$	2. _____
3. $8 = 4x$	3. _____
4. $2 = x$	4. _____
5. $x = 2$	5. _____

2. Given: $2 - 6x + 4 = 3x - 14 + x$
 Prove: $x = 2$

Statements	Reasons
1. $2 - 6x + 4 = 3x - 14 + x$	1. _____
2. $6 - 6x = 3x - 14 + x$	2. _____
3. $6 - 6x = 4x - 14$	3. _____
4. $6 = 10x - 14$	4. _____
5. $20 = 10x$	5. _____
6. $2 = x$	6. _____
7. $x = 2$	7. _____

3. Given: $\frac{1}{4}x + 7y = 10 - y$
 Prove: $x = 40 - 32y$

Statements	Reasons
1. $\frac{1}{4}x + 7y = 10 - y$	1. _____
2. $\frac{1}{4}x + 7y - 7y = 10 - y - 7y$	2. _____
3. $\frac{1}{4}x = 10 - 8y$	3. _____
4. $4\left(\frac{1}{4}x\right) = 4(10 - 8y)$	4. _____
5. $x = 4(10 - 8y)$	5. _____
6. $x = 40 - 32y$	6. _____

4. Given: $\begin{cases} a = 2 \\ -(-2a + 3b) = 6 \end{cases}$
 Prove: $b = -\frac{2}{3}$

Statements	Reasons
1. $-(-2a + 3b) = 6$	1. _____
2. $-2a + 3b = -6$	2. _____
3. $3b = 2a - 6$	3. _____
4. $b = \frac{2}{3}a - 2$	4. _____
5. $a = 2$	5. _____
6. $b = \frac{4}{3} - 2$	6. _____
7. $b = -\frac{2}{3}$	7. _____

5. Given: $5(n-3) = 4(2n-7) - 14$
 Prove: $n = 9$

Statements	Reasons
1. $5(n-3) = 4(2n-7) - 14$	1. _____
2. $5n - 15 = 8n - 28 - 14$	2. _____
3. $5n - 15 = 8n - 42$	3. _____
4. $5n - 15 + 15 = 8n - 42 + 15$	4. _____
5. $5n = 8n - 27$	5. _____
6. $5n - 8n = 8n - 27 - 8n$	6. _____
7. $-3n = -27$	7. _____
8. $\frac{-3n}{-3} = \frac{-27}{-3}$	8. _____
9. $n = 9$	9. _____

6. Given: $4 - 7x = 2x - 23$
 Prove: $x = 3$

Statements	Reasons

7. Given: $\frac{1}{2}x + 6y = 8 - 3y$
Prove: $x = 16 - 18y$

Statements	Reasons

8. Given: $3 - 2x + 12 = 4x - 7 - 2x$
Prove: $\frac{11}{2} = x$

Statements	Reasons

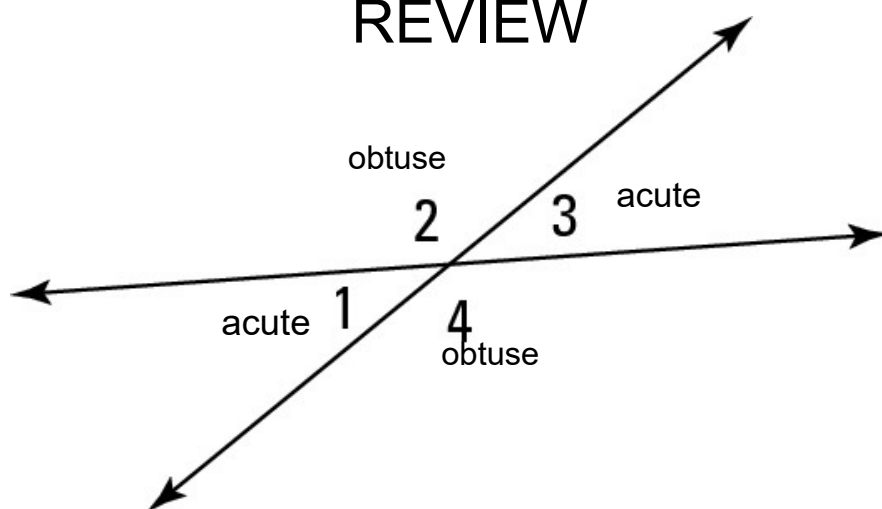
9. Given: $\begin{cases} a = -3 \\ 2b + a + 1 = 5 \end{cases}$
Prove: $b = \frac{7}{2}$

Statements	Reasons

10. Given: $-(n-5) = 2(3n-8) - 7$
Prove: $n = 4$

Statements	Reasons

REVIEW

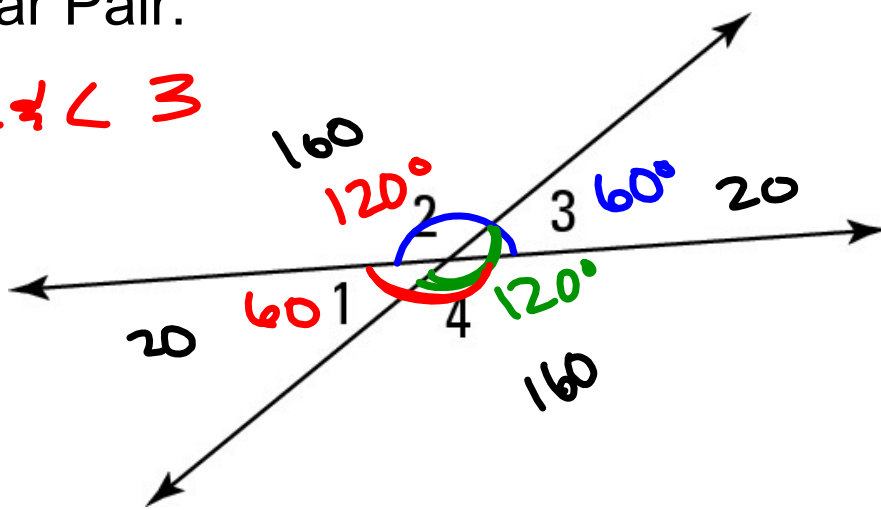


REVIEW

Give example with an angle value...

Linear Pair:

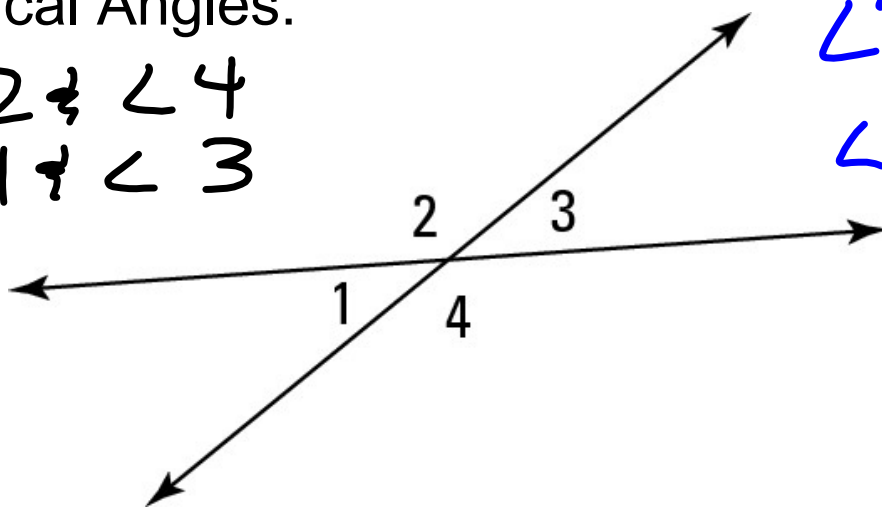
$\angle 2$ & $\angle 3$



REVIEW

Vertical Angles:

$$\angle 2 \cong \angle 4$$
$$\angle 1 \cong \angle 3$$



$$\angle 2 \cong \angle 4$$

$$\angle 1 \cong \angle 3$$

REVIEW

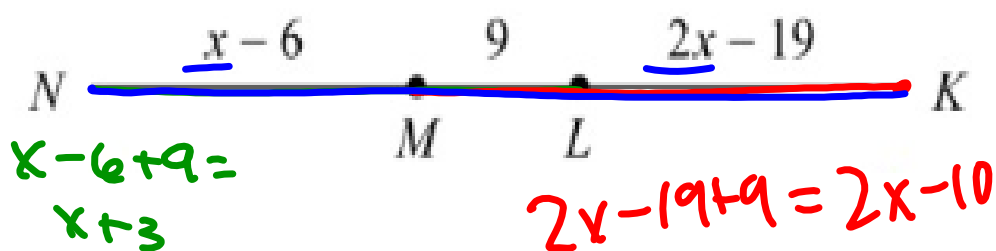
What is the length of AC?



REVIEW

What is the length of \overline{NL} ? \overline{MK} ? \overline{NK} ?

$$x+3 \quad 2x-10 \quad 3x-16$$



1. $4x = 12x + 32$

$4x = 12x + 32$ Given

$4x - 12x = 12x - 12x + 32$ Subtraction

$-8x = 32$ Substitution

$-8x = 32$ DIVISION POE

$\frac{-8}{-8} = \frac{32}{-8}$

$x = -4$ Substitution

1. $4x = 12x + 32$

$4x = 12x + 32$ Given

$-8x = 32$ Subtraction POE

$x = -4$ DIVISION POE

Name: _____ Hour: _____

6.1 B Algebraic Proofs

Solve each equation. Write a reason for every step.

1. $4x = 12x + 32$

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1. $4x = 12x + 32$

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3. $60x + 153 = 9x + 51$

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4. $-4x + 10 = -5x + 18$

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5. $-3(x + 2) = 16 - x$

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6. $-x - 2(9 - 8x) = 12$

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7. $6(x - 6) = x(16 - 7)$

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8. $\frac{1}{4}x + 10 = 2$

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9. $2(4-x)+1=16-3x$

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10. $\frac{1}{3}x+4=6x+12$

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11. **Given:** $8x - 5 = 2x + 1$
Prove: $x = 1$
Proof:

Statements	Reasons
a. $8x - 5 = 2x + 1$	a. _____
b. $8x - 5 - 2x = 2x + 1 - 2x$	b. _____
c. _____	c. Substitution Property
d. _____	d. Addition Property
e. $6x = 6$	e. _____
f. $\frac{6x}{6} = \frac{6}{6}$	f. _____
g. _____	g. _____

12. **Given:** $\frac{4x+6}{2} = 9$
Prove: $x = 3$
Proof:

Statements	Reasons
a. $\frac{4x+6}{2} = 9$	a. _____
b. $-\left(\frac{4x+6}{2}\right) = 2(9)$	b. Mult. Prop.
c. $4x + 6 = 18$	c. _____
d. $4x + 6 - 6 = 18 - 6$	d. _____
e. $4x =$ _____	e. Substitution
f. $\frac{4x}{4} =$ _____	f. Div. Prop.
g. _____	g. Substitution

13. **Given:** $4x + 8 = x + 2$
Prove: $x = -2$
Proof:

Statements	Reasons
a. $4x + 8 = x + 2$	a. _____
b. $4x + 8 - x =$ $x + 2 - x$	b. _____
c. $3x + 8 = 2$	c. Substitution
d. _____	d. Subtr. Prop.
e. _____	e. Substitution
f. $\frac{3x}{3} = \frac{-6}{3}$	f. _____
g. _____	g. Substitution

