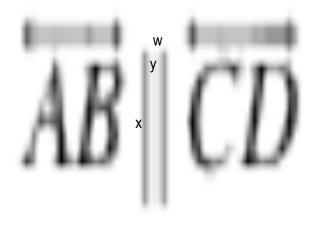
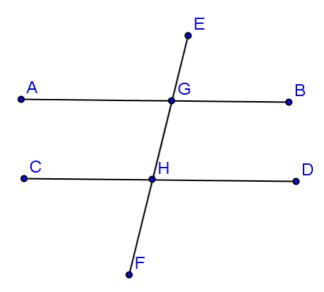
| 001 | NOW – Geometry Regents Lomac 2014-2015 Date | <u></u> | due Angles: Writing Proofs | | | |
|-----|--|-------------|----------------------------|--|--|--|
| | ead number 1 for this lesson and define the word prem" on your do now page. | Name LO: | | | | |
|) | Angles: Writing Proofs | | | | | |
| | A theorem is a statement that can be proven. We had one tells us. (You might want to refer to the notes pages | | • | | | |
| | triangle sum theorem | | | | | |
| | exterior angle theorem | | | | | |
| | vertical angles theorem | | | | | |
| | alternate interior angles theorem | | | | | |
| | alternate exterior angles theorem | | | | | |
| | same side interior angles theorem | | | | | |
| | When proving these theorems, we can use facts that we know and other theorems we have proven. The following can be used as facts for proving. Describe how each one can be useful. | | | | | |
| | linear pair of angles | | | | | |
| | adjacent angles on a line | | | | | |
| | adjacent angles around a point | | | | | |
| | | | | | | |

|] (2) | Angles: Writing Proofs |
|-------|---|
| | Sometimes it is good to think about where your proof is starting and where it will end. You must start at the top of the proof with the given and work your way to what you are trying to prove, HOWEVER, you may want to start at the end and think backwards about what facts can lead to the conclusion you are proving. |
| | \square PROVE: If lines are parallel ($\overrightarrow{AB} \parallel \overrightarrow{CD}$), then same side interior angles are supplementary (sum = 180°). |



| I know that | because |
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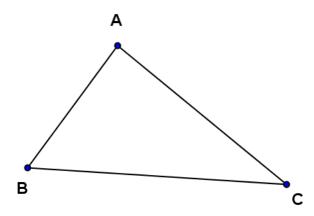
 \square (3) \square PROVE: If lines are parallel ($\overrightarrow{AB} \parallel \overrightarrow{CD}$), then alternate interior angles are congruent.



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| | 1 (4 | 4) | | PROVE: | The sun | of the | angles | in a | triangl | e is | 180°. |
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You will need to add an auxiliary line (label it QR) through point A that is parallel to \overline{BC} . Add the letters a,b,c,d, and e to the angles in the diagram. (See activity 3.4 #3 to help you with this proof.)



| I know that | because |
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| (5) | PROVE: If two lines are perpend | licular to the same line, then the two lines are parallel to each other. |
| | | ment and add letters where needed so that you can name lines and angles |
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| Angles: Proving that lines a | |
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| \square Is line p parallel to line q ? | |
| 123° p | I can/cannot prove thatbecause |
| 57° | |
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| p_ | I can/cannot prove that |
| 62° | because |
| 62° | |
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<u></u> (6)

| Angles: Proving that lines ar ☐ Is line <i>a</i> parallel to line <i>b</i> ? | e parallel |
|---|--------------------------------|
| a | I can/cannot prove thatbecause |
| 143° | |
| a h b | I can/cannot prove thatbecause |
| ↓ ↓ | |
| 114°/ | |
| 66°48° b | |
| 29° 60° b | |
| 106° 49° | |
| 54° | |
| 60° b | |

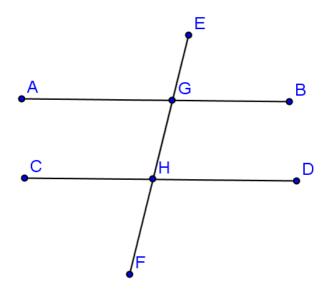
<u></u> (6)

| ☐ What value of x will resul | t in parallel lines? | | |
|-------------------------------|----------------------|---------------------|---------|
| $(2x+20)^{\circ}$ | I know that | will be parallel to | because |
| $\frac{\sqrt{3x^{\circ}}}{s}$ | | | |
| ✓ | | | |
| 1 | | will be parallel to | because |
| $(90-x)^{\circ}$ | | | |
| x° s | | | |
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| 1 | | | |
| $\frac{r}{2x^{\circ}}$ | | | |
| x° | | | |
| | | | |
| , | | | |
| $(4x-10)^{\circ}$ | | | |

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| (6) | Angles: Proving that lines are p | arallel | | |
| □ (•) | | | | |
| | Prove that lines are parallel or | | | |
| • | E H G | → I know that | because | |
| | /\58° /\51° | | | |
| | /62°\ /59°\ | | | |
| , | A_{p} C_{p} | | | |
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| <u>(7)</u> | Exit Ticket (a)Given that x = y, prove that AB El | F. (b) For what value of x will <i>I</i> be parallel to <i>m</i> ? |
|------------|---|--|
| | G B Y H D X | 120° m |
| (8) | Homework Below is the same statement you prostatement. Choose different angles than | oved in #2. This time, you choose the angles that you will use to prove the the angles used in #2. |
| | \square PROVE: If lines are parallel ($\overrightarrow{AB} \parallel \overrightarrow{O}$ | \overrightarrow{CD}), then same side interior angles are supplementary (sum = 180°) |
| | A C | G B |
| | I know that | because |
| | | |
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| ☐ /0\ | \square PROVE: If lines are parallel ($\overrightarrow{AB} \parallel \overrightarrow{CD}$), then alternate exterior angles are congruent | | | | | | |
|-------|--|---------------|----|-------------------------------|---------------|-----------------------|--|
| (0) | DDOVE: If lines are narallel | $I \Lambda R$ | CD | than alternate exterior and | ilae ara cant | rruant | |
| | | (AD) | CD | , then alternate exterior any | lies are cont | ji u c iii | |



| I know that | because |
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| Angles: Proving that lines ar | e parallel |
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| \square Is line m parallel to line n ? | |
| A | |
| | I can/cannot prove that |
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| <i>J</i> ''' <i>J</i> '' | I can/cannot prove that |
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