Geometric Optics Ray Tracing WS $\qquad$

Name
Date $\qquad$ Per $\qquad$

| f |  |  |
| :--- | :--- | :--- |
| $\mathrm{S}_{0}$ |  |  |
| $\mathrm{~S}_{\mathrm{i}}$ |  |  |
| $\mathrm{h}_{0}$ |  |  |
| $\mathrm{~h}_{\mathrm{i}}$ |  |  |
| M |  |  |



| $f$ |  |  |
| :--- | :--- | :--- |
| $S_{o}$ |  |  |
| $s_{i}$ |  |  |
| $h_{o}$ |  |  |
| $h_{i}$ |  |  |
| $M$ |  |  |



| f |  |  |  |
| :--- | :--- | :--- | :---: |
| $\mathrm{S}_{0}$ |  |  |  |
| $\mathrm{~s}_{\mathrm{i}}$ |  |  |  |
| $\mathrm{h}_{\mathrm{o}}$ |  |  |  |
| $\mathrm{h}_{\mathrm{i}}$ |  |  |  |
| $M$ |  |  |  |
|  |  |  |  |
|  |  |  |  |



| f |  |  |  |
| :--- | :--- | :--- | :---: |
| $\mathrm{So}_{0}$ |  |  |  |
| $\mathrm{si}_{\mathrm{i}}$ |  |  |  |
| $\mathrm{h}_{\mathrm{o}}$ |  |  |  |
| $\mathrm{h}_{\mathrm{i}}$ |  |  |  |
| $M$ |  |  |  |
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| f |  |  |  |
| :--- | :--- | :--- | :---: |
| $\mathrm{s}_{0}$ |  |  |  |
| $\mathrm{si}_{\mathrm{i}}$ |  |  |  |
| $\mathrm{h}_{0}$ |  |  |  |
| $\mathrm{~h}_{\mathrm{i}}$ |  |  |  |
| $M$ |  |  |  |
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| f |  |  |  |
| :--- | :--- | :--- | :---: |
| $\mathrm{S}_{0}$ |  |  |  |
| $\mathrm{~s}_{\mathrm{i}}$ |  |  |  |
| $\mathrm{h}_{\mathrm{o}}$ |  |  |  |
| $\mathrm{h}_{\mathrm{i}}$ |  |  |  |
| $M$ |  |  |  |
|  |  |  |  |
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## Ray Tracing WS

$\qquad$ Date
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1. Complete the tables below with the correct signs, + or - , and choose the correct terms.

| $f$ | $s_{o}$ | $s_{i}$ | $h_{o}$ | $h_{i}$ | $M^{M}$ | Converging or <br> Diverging | Real or <br> Virtual | Convex or <br> Concave |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |


| Converging Lens, <br> Object outside $f$ |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Converging Lens, <br> Object at $f$ |  |  |  |  |  |  |  |  |  |
| Converging Lens, <br> Object inside $f$ |  |  |  |  |  |  |  |  |  |


| Converging Mirror, <br> Object outside $f$ |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Converging Mirror, <br> Object at $f$ |  |  |  |  |  |  |  |  |  |
| Converging Mirror, <br> Object inside $f$ |  |  |  |  |  |  |  |  |  |


| Diverging Lens, <br> Object outside $f$ |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Diverging Lens, <br> Object inside $f$ |  |  |  |  |  |  |  |  |  |


| Diverging Mirror, <br> Object outside $f$ |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Diverging Mirror, <br> Object inside $f$ |  |  |  |  |  |  |  |  |  |

2. Which variables have the same sign in all cases above?
3. What does the sign of the focal point depend on?
4. When an image is real, what else can be said about it? (There are quite a few)
5. When an image is virtual, what else can be said about it? (There are quite a few)
6. What are the main differences between converging and diverging?
7. What are the differences between lenses and mirrors?
