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Period: \_\_\_\_\_

Key

### RULES FOR SIGNIFICANT FIGURES

1. Non-zero digits and zeros between non-zero digits are always significant.
2. Leading zeros are not significant.
3. Zeros to the right of all non-zero digits are only significant if a decimal point is shown.
4. For values written in scientific notation, the digits in the coefficient are significant.
5. In a common logarithm, there are as many digits after the decimal point as there are significant figures in the original number.

For the following measurements, list the number of significant figures shown.

#### Rule 1

#### Number of significant figures:

1. 34 m
2. 304 m
3. 784657 s
4. 78400657 s
5. 10000001 cm

2  
3  
6  
8  
8

#### Rule 2

#### Number of significant figures:

6. 0.1 km
7. 0.03 m
8. 0.004 s
9. 0.00071 L
10. 0.0000823 g

1  
1  
1  
2  
3

#### Rule 3

#### Number of significant figures:

11. 10 m
12. 10.0 s
13. 100 kg
14. 100.00 mm
15. 0.030 g

1  
3  
1  
5  
2

Rule 4Number of significant figures:

- |                               |          |
|-------------------------------|----------|
| 16. $1.2 \times 10^3$ s       | <u>2</u> |
| 17. $6.345 \times 10^5$ m     | <u>4</u> |
| 18. $4.30 \times 10^2$ g      | <u>3</u> |
| 19. $7.210 \times 10^9$ L     | <u>4</u> |
| 20. $1.111000 \times 10^6$ kg | <u>7</u> |

Rule 5 Example

If the original number = 0.0034

Then use calculator to find the log.

$\text{Log}(0.0034) = 2.468521083$

The correct value to report is 2.47 (Don't worry about Rule 5 for now!)

How many significant figures are present? For each of the following, give the number of significant figures and which rules (1, 2, 3, and/or 4) you used to determine each example:

	# sig fig	which rules?		# sig fig	which rules?
21. 0.02	<u>1</u>	_____	36. 90,100	<u>3</u>	_____
22. 0.020	<u>2</u>	_____	37. $4.7 \times 10^{-8}$	<u>2</u>	_____
23. 501	<u>3</u>	_____	38. 10,800.000	<u>8</u>	_____
24. 501.0	<u>4</u>	_____	39. $3.01 \times 10^{21}$	<u>3</u>	_____
25. 5,000	<u>1</u>	_____	40. 0.000410	<u>3</u>	_____
26. 5,000.	<u>4</u>	_____	41. 2500	<u>2</u>	_____
27. 6,051.00	<u>6</u>	_____	42. 2500.0	<u>5</u>	_____
28. 0.0005	<u>1</u>	_____	43. 0.002300	<u>4</u>	_____
29. 0.1220	<u>4</u>	_____	44. $7.500 \times 10^8$	<u>4</u>	_____
30. 10,001	<u>5</u>	_____	45. 2873.0	<u>5</u>	_____
31. 8040	<u>3</u>	_____	46. 0.189	<u>3</u>	_____
32. 0.0300	<u>3</u>	_____	47. 0.2560	<u>4</u>	_____
33. 699.5	<u>4</u>	_____	48. $1.00000 \times 10^3$	<u>6</u>	_____
34. $2.000 \times 10^2$	<u>4</u>	_____	49. 0.0657	<u>3</u>	_____
35. 0.90100	<u>5</u>	_____	50. 270.	<u>3</u>	_____