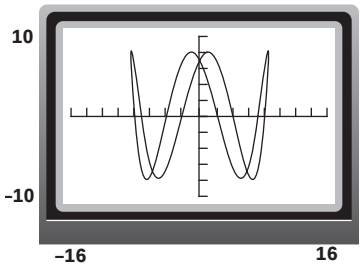
8.



9. 3

10. Answers may vary. Check students' work.

Answers to Spreadsheet Activities

Activity 1

1. =IF(B3/B2=B4/B3, "EXPON", "NOT EXPON")

2. exponential; You multiply by 3 to get from each *y*-value to the next.

3. Answers may vary. Check students' work.

4. =B2*H2+C2*H3+D2*H4+E2*H5

5. =B3*I2+C3*I3+D3*I4+E3*I5

6. $\begin{bmatrix} 50 & 2800 \\ 24 & 1230 \\ 63 & 3160 \end{bmatrix}$

Activity 2

1. =B2+F$1

2. =B3+D$1

3. Answers may vary. An example is given. (2, 2), (5, 0), (8, –2)

4. $y = 8.2x + 73$

5. Yes, because *r* is close to 1.

6. =2*A2

7. =–3*A2

Activity 3

1. =(1+(E$1/B2))^B2

2. 24

3. =EXP(E1)

4. The value in cell E9 has been rounded, so the unrounded value could indeed be smaller than the value in E10.

5. **See below.** Edit the formulas for cells D2 through G2 and D10 through G10 by multiplying the old formula by 500. This could be done, as in the spreadsheet that follows, by putting 500 in a cell and then using an absolute value reference. Complete the remaining formulas by using **Fill Down**.

6. Answers may vary. Check students' work.

	A	B	C	D	E	F	G
1	Compounding	n	r=	0.05	0.1	0.5	1
2	annually	1		525	550	750	1000
3	semiannually	2		525.3125	551.25	781.25	1125
4	quarterly	4		525.4726685	551.9064453	800.9033203	1220.703125
5	monthly	12		525.5809489	552.3565337	816.0470664	1306.517645
6	daily	365		525.6337482	552.5778908	824.0786259	1357.283741
7	hourly	8760		525.6354732	552.5851436	824.3488727	1359.063346
8	every minute	525600		525.6355469	552.5854538	824.3604393	1359.139621
9	every second	31536000		525.6355468	552.58546	824.3606339	1359.140889
10	continuously			525.6355482	552.585459	824.3606354	1359.140914
11							
12	P=	500					

Activity 4

1. =(0.883)^A2
2. about 8000 years old
3. after 5500 years
4. =A6+0.1
5. about 5600 years
6. **a.** =A2+1

   b. =LOG(7*A2+13,6)
7. $\log_6 (7t + 13)$ is not defined when $7t + 13$ is negative.
8. –1
9. 9

	A	B	C
1	x		#26
2	0		#NUM!
3	1		#NUM!
4	2		#NUM!
5	3		#NUM!
6	4		#NUM!
7	5		#NUM!
8	6		#NUM!
9	7		#NUM!
10	8		#NUM!
11	9		3
12	10		2.169925
13	11		1.73696559
14	12		1.45943162

Activity 5

1. =B2^2-4*A2*C2
2. NO SOL
3. **a.** =(–B2+SQRT(D2))/(2*A2)

   b. =(–B2–SQRT(D2))/(2*A2)
4. **a.** =–B2/(2*A2)

   b. =A2*C5^2+B2*C5+C2
5. =A$2*B8^2+B$2*B8+C$2
6. You do not need to **Fill Down** from E5.

Activity 6

1. Check students' spreadsheets to see that they correctly generated the table and graph to match the one on the activity page.
2. =B2/200*100
3. =A2–B$24
4. =B2^2
5. =SUM(C2:C21)
6. =SQRT(C22/20)
7.

	A	B
1	White Blood Cell Counts	
2	5620	
3	5730	
4	5750	
5	6210	
6	6390	
7	6750	
8	6900	
9	7030	
10	7230	
11	7450	
12	7600	
13	7710	
14	7730	
15	7850	
16	8090	
17	8370	
18	8630	
19	8880	
20	9060	
21	9240	
22	9380	
23	9440	
24	9700	
25	9890	
26	10250	
27	10900	
28	11070	
29	MEAN	8105.55556
30	STANDARD DEVIATION	1535.245989
31	MEDIAN	7850

Activity 7

1. $x = 0.2531646$, $y = 0.7341772$
2. $x = 0.2081115$, $y = –0.9252099$
3. $x = 4.633333$, $y = –1.0333333$, $y = –0.5666667$

Activity 8

1. =8*B2^(1/2)
2. =C2*60*60/5280
3. **a.** =A8*5280/(60*60)

   b. =B8^2/64
4.

	A	B	C
1	Max Vel.(mph)	Max Vel(ft/sec)	Drop(ft)
2	100	146.6666667	336.1111111
3	80	117.3333333	215.1111111
4	60	88	121

Activity 9

1. To use **Fill Down**, you do not want these cells to change.
2. **a.** =C2*A2+D$1

   b. =D2*A2+E$1

   c. =E2*A2+F$1

3. –330

4. –4,3

5. $-\frac{1}{2}, \frac{2}{3}$

6. $x^4 - 6x^3 + 11x^2 - 6x$

Activity 10

1.

	A	B	C	D
1	# Term	Sequence A	Sequence B	Sequence C
2	1	5	2	19
3	2	7	-4	16
4	3	10	8	13
5	4	14	-16	10
6	5	19	32	7

2. a. neither

b. geometric

c. arithmetic

3. a. =(A2+B2)/2

b. =SQRT(A2*B2)

4. a. =2*A2^2+1

b. =2*B2^2+1

Activity 11

1. a. length of segment *AB*

b. length of segment *BC*

c. length of segment *AC*

d. midpoint of segment *BC*

e. midpoint of segment *AC*

f. midpoint of segment *AB*

2. a. =B3–D7

b. =B4

c. =2*B5

d. = SQRT(B5^2–B6^2)

e. =B3–B5

f. =B4

3. D9:E12

Activity 12

1.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	a.		D	R	A	I	E	S	P	F	RA	M	SN	
2		D	0	0	0	0	0	0	0	0	0	0	0	
3		R	0	0	0	0	0	0	0	0	0	0	0	
4		A	0	1	0	0	0	0	0	0	0	0	0	
5		I	0	1	1	1	0	1	0	0	0	1	1	
6		E	0	0	0	0	0	1	0	0	0	0	0	
7		S	0	1	0	0	0	0	0	0	0	0	0	
8		P	1	0	0	1	1	1	0	1	1	1	0	
9		F	0	0	0	0	0	0	0	0	0	0	0	
10		RA	0	0	0	0	0	0	0	1	0	0	0	
11		M	0	0	0	0	0	0	0	1	1	0	1	
12		SN	0	1	0	0	0	0	0	1	0	0	1	
13														
14	b.		D	R	A	I	E	S	P	F	RA	M	SN	
15		D	0	0	0	0	0	0	0	0	0	0	0	
16		R	0	0	0	0	0	0	0	0	0	0	0	
17		A	0	0	0	0	0	0	0	0	0	0	0	
18		I	0	4	1	1	0	1	0	2	1	1	3	
19		E	0	1	0	0	0	0	0	0	0	0	0	
20		S	0	0	0	0	0	0	0	0	0	0	0	
21		P	0	2	1	1	0	2	0	2	1	1	2	
22		F	0	0	0	0	0	0	0	0	0	0	0	
23		RA	0	0	0	0	0	0	0	0	0	0	0	
24		M	0	1	0	0	0	0	0	2	0	0	1	
25		SN	0	1	0	0	0	0	0	1	0	0	1	
26														
27	c.		D	R	A	I	E	S	P	F	RA	M	SN	
28		D	0	0	0	0	0	0	0	0	0	0	0	
29		R	0	0	0	0	0	0	0	0	0	0	0	
30		A	0	1	0	0	0	0	0	0	0	0	0	
31		I	0	5	2	2	0	2	0	2	1	2	4	
32		E	0	1	0	0	0	1	0	0	0	0	0	
33		S	0	1	0	0	0	0	0	0	0	0	0	
34		P	1	2	1	2	1	3	0	3	2	2	2	
35		F	0	0	0	0	0	0	0	0	0	0	0	
36		RA	0	0	0	0	0	0	0	1	0	0	0	
37		M	0	1	0	0	0	0	0	3	1	0	2	
38		SN	0	2	0	0	0	0	0	2	0	0	2	

2. a. =COMBIN(5,2)+COMBIN(7,2)

b. 31

3. a. =COMBIN(B7,B8–1)

b. =B7–B8+1

c. =B7–D10

Activity 13

1. =1/6

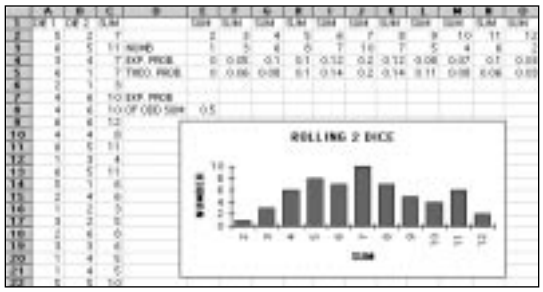
2. C2:H3

3. =IF(A2=1,"HEADS","TAILS")

4. =DCOUNT($A$1:$A$51,,D1:D2)

5. =D4/50

6. Answers may vary. An example is given.



Activity 14

1. a. =INT(B3)

b. =INT((B3–A5)*60)

c. =INT(((B3–A5)*60–B5)*60)

2. =SQRT(B2^2+B3^2–2*B2*B3*COS(B4*PI()/180))

3. =ACOS((B9^2+B10^2–B8^2)/(2*B9*B10))*180/PI()

4. a. = ACOS((B8^2+B10^2–B9^2)/(2*B8*B10))*180/PI()

b. = ACOS((B8^2+B9^2–B10^2)/(2*B8*B9))*180/PI()

Activity 15

1. Y=SINX

2. D$1*SIN(D$2*((A2*PI()/180)–(D$3*PI()/180)))+D$4

3. $a = 2, b = 0.5, h = 0, k = 3$

4. Answers may vary. Check students' work.

Answers to CBL Activities

CBL 1, Chapter 2

1. It doubled. The slope should double when the water temperature is increased by another 10°C.

2. Predictions may vary. The pressure inside the flask should decrease, since the steel wool will oxidize and use much of the oxygen originally in the air inside the flask.

CBL 2, Chapter 4

1. Answers may vary. Most students will be guided by the general shape of the data plot.

2. Answers may vary. Examples are given. exponential functions: growth of insect populations, carbon dating, banking interest formulas, shelf life of dairy products (especially milk); logarithmic functions: earthquake scales, pH scales, decibel measurements

3. Answers may vary. Check students' work.

CBL 3, Chapter 5

1. Answers may vary. Check students' work.

2. Answers may vary. Feathers or balloons will give very different coefficients, since air resistance becomes a significant consideration.

3. Answers may vary. Check students' work. (Balloons work well, since the reflection of the motion detector "signal" gives good readings for such objects.)

CBL 4, Chapter 7

1. The faster the walker, the greater the absolute value of the slope. When the walker moves toward the detector, the slope is negative, and when the walker moves away from the detector, the slope is positive.

2. The point of intersection tells how far the walkers would have been from the detector when they passed each other had they been in motion at the same time.

CBL 5, Chapter 10

1. Racket balls and basketballs work well. Tennis balls do not work well, because the fuzz on the balls gives distorted readings to the motion detector.

2. Yes, the gravitational constant is the same for all of the balls.

3. The best conditions include a smooth ball, a true bounce, and the motion detector held steady to give accurate readings.

CBL 6, Chapter 15

1. Answers may vary. Check students' work.

2. All of the values except *k* should change. The value of *b* will change, since there will be fewer cycles completed in a given amount of time. The value *a* will change, since the swing will move greater distances from the center position. The value *h* will change if the swing is in a different position when the detector is first turned on.