BLM Answers

BLM 9.GR.1 Practice: Get Ready

1. a) perimeter: 33.6 cm; area 52.9 cm^2
b) perimeter: 36.4 cm; area 82.8 cm^2

2. a) circumference: 18.8 cm; area 28.3 cm^2
b) circumference: 31.4 cm; area 78.5 cm^2

3. a) surface area: 28 cm^2; volume: 10 cm^3
b) surface area: 1384 cm^2; volume: 3120 cm^3

4. a) surface area: 326.7 cm^2; volume: 452.4 cm^3
b) surface area: 395.8 cm^2; volume: 508.9 cm^3

5. a) They have the same volume, 216 cm^3.
b) container A; 36 cm^2

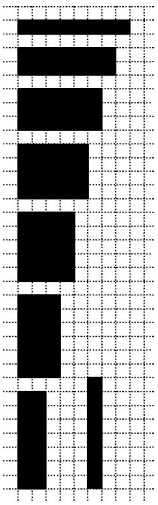
6. a) container A: surface area = 402.1 cm^2 , volume = 603.2 cm^3
container B: surface area = 414.7 cm^2, volume = 565.5 cm^3
b) container A
c) container A

BLM 9.1.1 Practice: Investigate Measurement Concepts

1. a)

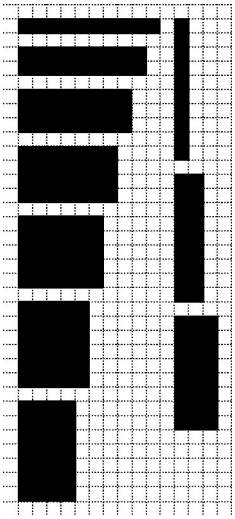
Rectangle	Width	Length	Perimeter	Area
1	1	8	18	8
2	2	7	18	14
3	3	6	18	18
4	4	5	18	20
5	5	4	18	20
6	6	3	18	18
7	7	2	18	14
8	8	1	18	8

b)



2.

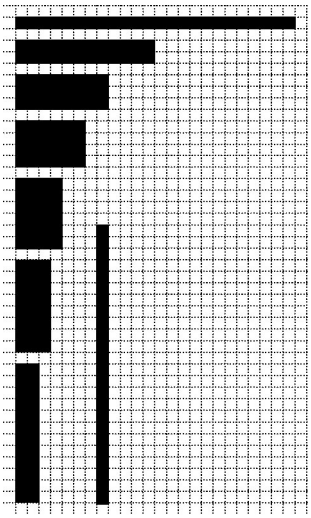
Rectangle	Width	Length	Perimeter	Area
1	1	10	22	10
2	2	9	22	18
3	3	8	22	24
4	4	7	22	28
5	5	6	22	30
6	6	5	22	30
7	7	4	22	28
8	8	3	22	24
9	9	2	22	18
10	10	1	22	10



3. a)

Rectangle	Width	Length	Perimeter	Area
1	1	24	50	24
2	2	12	28	24
3	3	8	22	24
4	4	6	20	24
5	6	4	20	24
6	8	3	22	24
7	12	2	28	24
8	24	1	50	24

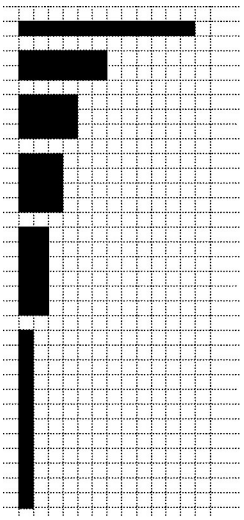
b)



BLM Answers

4.

Rectangle	Width	Length	Perimeter	Area
1	1	12	26	12
2	2	6	16	12
3	3	4	14	12
4	4	3	14	12
5	6	2	16	12
6	12	1	26	12



BLM 9.2.1 Practice: Perimeter and Area Relationships of a Rectangle

1. **a)** 1 by 7; 2 by 6; 3 by 5; 4 by 4
b) 4 by 4
c) It is a square.

2. **a)** 1 by 13, 2 by 12, 3 by 11, 4 by 10, 5 by 9, 6 by 8, 7 by 7
b) 1 by 5, 3 by 3, 2 by 4
c) 1 by 10, 2 by 9, 3 by 8, 4 by 7, 5 by 6
d) 1 by 3, 2 by 2
e) 1 by 6, 2 by 5, 3 by 4
f) 1 by 12, 2 by 11, 3 by 10, 4 by 9, 5 by 8, 6 by 7

3. **a)** 24 m by 24 m
b) 27 m by 28 m
c) 17 m by 17 m
d) 18 m by 18 m

4. **a)** 4 m by 5 m
b) 4 m by 8 m
c) 8 m by 8 m
d) 6 m by 9 m
e) 10 m by 12 m
f) 6 m by 8 m

5. **a)** 4 m, 2 m, 2 m or 2 m, 3 m, 3 m
b) 4 m, 2 m, 2 m

6. 6 m by 3 m

BLM 9.3.2 Practice: Minimize the Surface Area of a Square-Based Prism

1. **a)** A: 16 cm; B: 4 cm; C: 1 cm
b) A: 136 cm^2; B: 96 cm^2; C: 160 cm^2
c) B, A, C

2. B, C, A

3. **a)** 8 by 8 by 8, 16 by 16 by 2, 4 by 4 by 32, 1 by 1 by 512, 2 by 2 by 128
b) 8 by 8 by 8

4. **a)** 6 by 6 by 6
b) 9.5 by 9.5 by 9.5
c) 4.8 by 4.8 by 4.8
d) 11 by 11 by 11

BLM 9.4.2 Practice: Maximize the Volume of a Square-Based Prism

1. **a)** A: 40 cm^3; B: 216 cm^3; C: 184 cm^3
b) B, C, A

2. B, A, C

3. C, B, A

4. **a)** 7 cm by 7 cm by 7 cm
b) 9 cm by 9 cm by 9 cm
c) 14 cm by 14 cm by 14 cm
d) 15 cm by 15 cm by 15 cm
e) 9.1 cm by 9.1 cm by 9.1 cm
f) 10.5 cm by 10.5 cm by 10.5 cm

BLM 9.5.2 Practice: Maximize the Volume of a Cylinder

1. **a)** A: 8 cm; B: 13 cm; C: 2 cm
b) A: 402.1 cm^3; B: 367.6 cm^3; C: 226.2 cm^3
c) A, B, C

2. C, A, B

3. B, A, C

4. **a)** $r = 3.6$ cm; $h = 7.2$ cm
b) $r = 5.2$ cm; $h = 10.3$ cm
c) $r = 1.5$ cm; $h = 2.9$ cm
d) $r = 5$ cm; $h = 10$ cm
e) $r = 6.3$ cm; $h = 12.6$ cm
f) $r = 7.3$ cm; $h = 14.6$ cm

BLM 9.6.1 Practice: Minimize the Surface Area of a Cylinder

1. **a)** A: 8.2 cm; B: 1 cm; C: 4 cm
b) A: 84.4 cm^2; B: 125.7 cm^2; C: 75.4 cm^2
c) C, A, B

2. C, B, A

3. B, C, A

4. **a)** $r = 6.2$ cm; $h = 12.4$ cm
b) $r = 4$ cm; $h = 8$ cm
c) $r = 2.3$ cm; $h = 4.7$ cm
d) $r = 1.2$ cm; $h = 2.5$ cm
e) $r = 4.7$ cm; $h = 9.4$ cm
f) $r = 4.1$ cm; $h = 8.2$ cm

BLM Answers

BLM 9.CR.1 Chapter 9 Review

1.

Rectangle	Width	Length	Perimeter	Area
1	1	32	66	32
2	2	16	36	32
3	4	8	24	32
4	8	4	24	32
5	16	2	36	32
6	32	1	66	32

2. **a)** 1 by 17, 2 by 16, 3 by 15, 4 by 14, 5 by 13, 6 by 12, 7 by 11, 8 by 10, 9 by 9
b) 9 cm by 9 cm

3. **a)** 1 by 48, 2 by 24, 3 by 16, 4 by 12, 6 by 8
b) 6 cm by 8 cm

4. **a)** $l = w = h = 10.6$ cm
b) $l = w = h = 9.5$ cm

5. **a)** $l = w = h = 10.8$ cm
b) $l = w = h = 6.8$ cm

6. $r = 7$ cm; $h = 14$ cm

7. The cylinder has volume 788.3 cm^3 and the cube has volume 889.5 cm^3. The cylinder has greater volume.

8. $r = 5.8$ cm; $h = 11.5$ cm

BLM 9.PT.1 Chapter 9 Practice Test

1. B
2. D
3. B
4. C
5. 80 m
6. 15 m by 15 m by 15 m
7. $r = 2.2$ cm; $h = 4.5$ cm
8. **a)** The dimensions of the square-based prism with the greatest volume are 4.1 cm by 4.1 cm by 4.1 cm. The volume of this prism is 68.9 cm^3. The cylinder with the greatest volume has a radius of 2.3 cm, a height of 4.6 cm, and a volume of 76.4 cm^3. Solvig should make a cylinder.
b) I assumed I would be able to use all of the cardboard to make the box. There would be no waste.

BLM.CT.1 Chapter 9 Test

1. D
2. C
3. D
4. B
5. 50 m^2
6. **a)** 4.9 cm by 4.9 cm by 4.9 cm
b) 144.1 cm^2
7. $r = 5$ cm; $h = 10.1$ cm
8. The dimensions of the square-based prism with a volume of 500 cm^3 are 7.9 cm by 7.9 cm by 7.9 cm. The surface area of this prism is 374.5 cm^2. A cylinder with volume 500 cm cubed has a radius of 4.3 cm, a height of 8.6 cm, and a surface area of 348.5 cm^2. Engla should make a cylinder.