

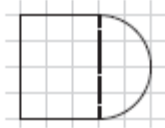
**Math Essentials 10 Teacher Learning Centre
Answer Links**

<Section 10.1 Answers>

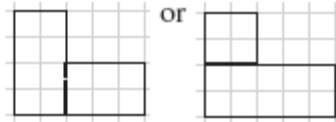
Answers to Activity Questions (pages 254–257)

These answers were calculated using the pi button on a calculator. Occasionally, rounded answers may be slightly different if students use 3.14 for pi.

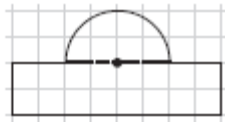
1. a) 1 square and 1 semicircle



- b) 2 rectangles or 1 square and 1 rectangle



- c) 1 rectangle and 1 semicircle



2. a) 18 square units b) 12 square units

3. a) length \times width b) square

4. a) Area of Shape 1 = 12 m²; Area of Shape 2 = 8 m²; Total Area = 20 m²

- b) Area of Shape 1 = 5 m²; Area of Shape 2 = 1 m²; Total Area = 6 m²

5. a) $A = \pi \times 3 \text{ m} \times 3 \text{ m} \approx 28.3 \text{ m}^2$

b) 78.5 m²

c) 55.4 m²

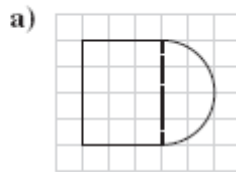
d) 50.3 m²

6. a) 56.5 m^2
 b) 77.0 m^2
7. a) $A = \pi \times 2 \text{ m} \times 2 \text{ m} \div 4 \doteq 3.1 \text{ m}^2$
 b) $A = \pi \times 3.5 \text{ m} \times 3.5 \text{ m} \div 4 \doteq 9.6 \text{ m}^2$
8. a) Shape 1 (rectangle): Area = $5 \text{ m} \times 4 \text{ m} = 20 \text{ m}^2$; Shape 2 (semicircle):
 Area = $\pi \times 2 \text{ m} \times 2 \text{ m} \div 2 \doteq 6.3 \text{ m}^2$;
 Total Area = 26.3 m^2
- b) Shape 1 (rectangle): Area = $6 \text{ m} \times 4 \text{ m} = 24 \text{ m}^2$; Shape 2 (quarter circle):
 Area = $\pi \times 4 \text{ m} \times 4 \text{ m} \div 4 \doteq 12.6 \text{ m}^2$;
 Total Area = 36.6 m^2

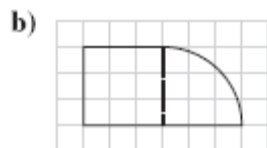
<Section 10.2 Answers>

Answers to Activity Questions (pages 258–261)

1. a) $5 \text{ m} \times 3 \text{ m}$
 b) $4 \text{ m} \times 3 \text{ m}$
2. a) 4
 b) 6
 c) Look for a rectangle that is 4 squares by 6 squares.
3. Example: 1 square represents 1 m. Look for a rectangle that is 4 squares by 5.5 squares.
4. a) rectangle, rectangle, semicircle
 b) rectangle 1: $2 \text{ m} \times 4 \text{ m}$, Area = 8 m^2 ;
 rectangle 2: $1 \text{ m} \times 2 \text{ m}$, Area = 2 m^2 ;
 semicircle: radius = 1 m, Area = 1.6 m^2 ;
 Total Area = 11.6 m^2
5. Example:



semicircle: Area = $\pi \times 2 \text{ m} \times 2 \text{ m} \div 2 \doteq 6.3 \text{ m}^2$;
 rectangle: Area = $4 \text{ m} \times 3 \text{ m} = 12 \text{ m}^2$;
 Total Area = 18.3 m^2



square: Area = $3 \text{ m} \times 3 \text{ m} = 9 \text{ m}^2$;

quarter circle:

Area = $\pi \times 3 \text{ m} \times 3 \text{ m} \div 4 \approx 7.1 \text{ m}^2$;

Total Area = 16.1 m^2

<Section 10.3 Answers>

Answers to Activity Questions (pages 262–265)

1. a) The outside edge of the diagram should be highlighted.
b) 40 m
2. a) The long sides of the patio are 8 m and 12 m. 21 shrubs
b) \$9.50 rounds to \$10. 21 shrubs is close to 20. My estimate is $\$20 \times 10 = \200 .
3. a) 10 m
b) 12 m
4. a) design b)
b) Example: design b)
c) Look for an acceptable rationale for part b).
Example: Since the design is narrow, I will be able to weed from the outside edge of the garden and not step on any plants in the garden.
5. a) $\frac{1}{2}$
b) Shape 1: three sides of the square have perimeter 6 m; Shape 2: semicircle has perimeter 3.1 m; Total Perimeter = 9.1 m
c) 10 pieces

6. a) $\frac{1}{2}$

- b) Shape 1 (3 sides of rectangle): $P = 2\text{ m} + 4\text{ m} + 2\text{ m} = 8\text{ m}$; Shape 2 (semicircle):
 $P = \pi \times 4\text{ m} \div 2 \doteq 6.3\text{ m}$;
Total = 14 m (to the nearest metre)

7. a) $\frac{1}{4}$

- b) Shape 1 (2 sides of rectangle): $P = 1\text{ m} + 6\text{ m} = 7\text{ m}$; Shape 2 (quarter circle):
 $P = \pi \times 1\text{ m} \div 4 \doteq 0.8\text{ m}$;
Total = 8 m (to the nearest metre)

- c) 40 petunias

<Section 10.4 Answers>

Answers to Activity Questions (pages 266–269)

1. a) 1 m^3

b) 5 m^3

2. a) 1.6 m^3

b) 4 h

3. a) 48.0 m^3

b) 3.1 m^3

4. 24 h

5. a) 4.0 m^3 , 2 h

b) 120.0 m^3 , 60 h

c) 6.3 m^3 , 3 h

d) 0.8 m^3 , 0 h

6. a) 75 m^3

b) 37.5 h

c) \$168.75

7. a) 14.1 m^3

b) \$31.73

<Section 10.5 Answers>

Answers to Activity Questions (pages 270–273)

1. Interlocking bricks: $\$15/\text{m}^2$, 8 m^2 , $\$120$;
Planters: $\$28$ each, 2, $\$56$; Total Cost: $\$176$
2. a) 1.6 m^3 b) $\$136$
3. a) 12 m b) $\$46.68$
4. a) Patio stones: $\$8/\text{stone}$, 52 stones, $\$416$;
Solar cover: $\$95/\text{m}^2$, 32 m^2 , $\$3040$;
Total Cost: $\$3456$
b) $\$22\,656$
5. a) Shape 1: rectangular volume = $4 \text{ m} \times 1 \text{ m} \times 0.3 \text{ m} = 1.2 \text{ m}^3$; Shape 2: circular volume = $\pi \times 1 \text{ m} \times 1 \text{ m} \times 0.3 \text{ m} \doteq 0.9 \text{ m}^3$; Total volume = 2.1 m^3
b) $\$94.50$
6. a) 0.1 m
b) 0.5 m^3
c) $\$49.50$

<Chapter 10 Review Answers>

Answers to Chapter 10 Review (pages 274–275)

1. c) circumference or perimeter
2. a) area
3. b) volume
4. Students can draw any combination of rectangles, squares, and circles.
5. a) 2 semicircles, a rectangle 4 by 2, a square 2 by 2
b) a semicircle, a rectangle 6 by 2
6. a) Shape 1 (rectangle): $A = 3 \text{ m} \times 2 \text{ m} = 6 \text{ m}^2$;
Shape 2 (rectangle): $A = 7 \text{ m} \times 2 \text{ m} = 14 \text{ m}^2$;
Total Area = 20 m^2
b) Shape 1 (rectangle): $A = 3 \text{ m} \times 6 \text{ m} = 18 \text{ m}^2$;
Shape 2 (semicircle) $A = \pi \times 3 \text{ m} \times 3 \div 2 \doteq 14.1 \text{ m}^2$;
Total Area: 32.1 m^2

7. a) 14 m
b) 11.1 m
8. a) 108 m^3
b) 0.9 m^3
9. a) \$38.85
b) \$49.90
c) \$176
d) \$285