4.3 Circumference of a Circle

MATHPOWER™ *Eight*, pp. 142–143

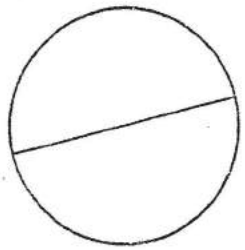
The perimeter of a circle is called the **circumference**.

The distance across a circle through the centre of the circle is called the **diameter**.

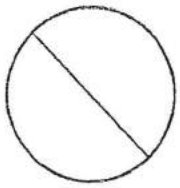
The formula used to calculate the circumference is $C = \pi \times d$. (Use $\pi = 3.14$.)

Measure the diameter of each circle and calculate the circumference, to the nearest tenth.

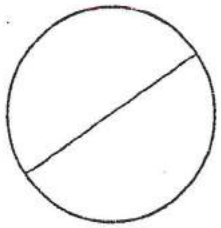
1. $d =$ _____
   $C =$ _____



2. $d =$ _____
   $C =$ _____



3. $d =$ _____
   $C =$ _____



Calculate the circumference of each circle.

4. $d = 9.5$ cm
   $C =$ _____

5. $d = 28$ cm
   $C =$ _____

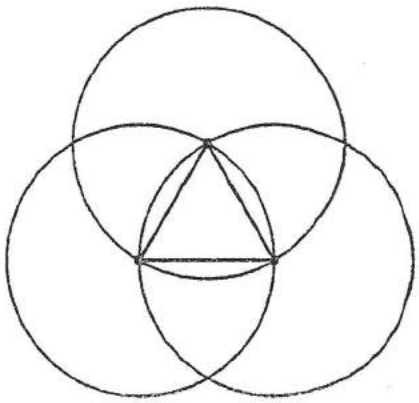
6. $r = 6.8$ cm
   $C =$ _____

7. $r = 3.4$ m
   $C =$ _____

8. $d = 17.8$ cm
   $C =$ _____

9. $r = 7.25$ cm
   $C =$ _____

10. The circumference of each circle is 40.82 cm. What is the perimeter of the triangle?



_____

11. The diameter of a quarter is 23.9 mm. Find the circumference.

_____

12. The circumference of a dime is 56.52 mm. Find the diameter.

_____

13. The largest tires ever manufactured measured 3.7 m in diameter. What was the circumference of each tire?

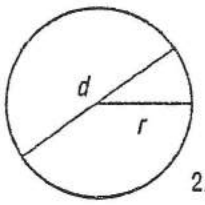
_____

14. The first Ferris wheel was erected in 1893 at the Chicago World's Fair. It measured 240.8 m in circumference. Find the diameter, to the nearest tenth of a metre.

_____

4.9 Area of a Circle

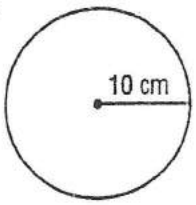
MATHPOWER™ *Eight*, pp. 158–159

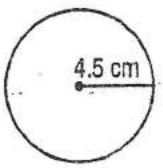


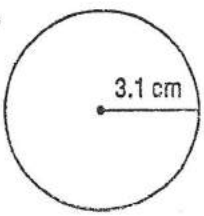
$A = \pi r^2$

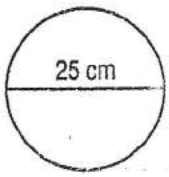
Use $\pi = 3.14$.

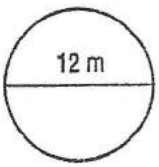
Calculate the area of each circle, to the nearest tenth.

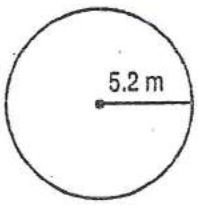
1. 

2. 

3. 

4. 

5. 

6. 

Find the area of each circle, to the nearest tenth.

7. $r = 6.3$ cm _____

8. $d = 24.2$ cm _____

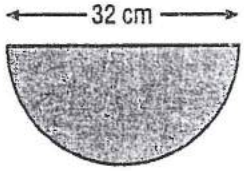
9. $d = 57$ m _____

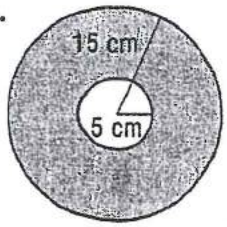
10. $r = 10.5$ m _____

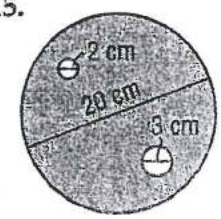
11. $d = 15.2$ cm _____

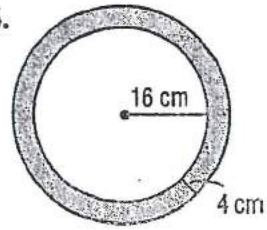
12. $r = 13.4$ cm _____

Calculate the area of the shaded region.

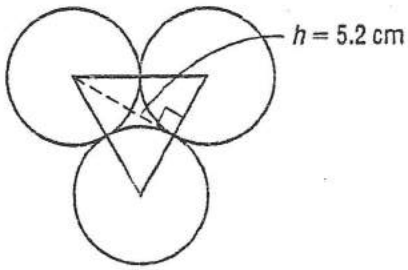
13. 

14. 

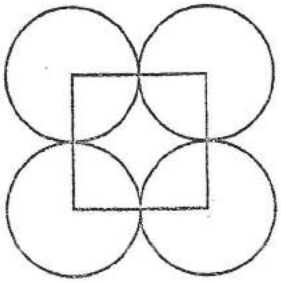
15. 

16. 

17. The area of each circle is 113.04 cm^2. Find the area of the triangle.



18. The area of each circle is 153.86 cm^2. Find the area of the square.



$\angle R = \angle N$ 8. DF = 9 cm, DE = 14 cm, EF = 12 cm, $\angle FDE = 58°$, $\angle DEF = 40°$, $\angle EFD = 82°$

Test One Chapter 3: Geometry

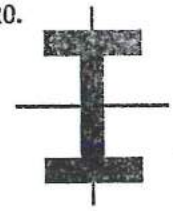
1. A, B, C, D **2.** $\overrightarrow{AC}$, $\overrightarrow{AB}$, $\overrightarrow{AD}$, $\overrightarrow{CD}$, $\overrightarrow{DA}$ **3.** $\overrightarrow{AD}$ **4.** AD, AB, AC, BC DC are 5 possible segments: **5.** $\angle DAC$, $\angle CAB$, $\angle ABC$, $\angle BCA$, $\angle ACD$, $\angle ADC$ are 6 possible angles. **6.** acute **7.** reflex **8.** obtuse **9.** reflex **10.** right **11.** acute **12.** 53° **13.** 49° **14.** 62° **15.** Sum: 540°, Angle measure: 108° **16.** Sum: 1440°, Angle measure: 144° **17.** $\angle p = 50°$, $\angle q = 130°$, $\angle r = 50°$ **18.** $\angle a = 70°$, $\angle b = 110°$, $\angle c = 70°$ **19.** $\angle a = 68°$, $\angle b = 44°$, $\angle c = 112°$ **20.** 133° **21.** 11.4 cm **22.** 12.3 cm **23.** AB = EF, AC = EG, CD = GH, BD = FH, $\angle A = \angle E$, $\angle C = \angle G$, $\angle B = \angle F$, $\angle D = \angle H$

Test Two Chapter 3: Geometry

1. A, B, C, D **2.** $\overrightarrow{AB}$, $\overrightarrow{AD}$, $\overrightarrow{AC}$, $\overrightarrow{DC}$, BC are 5 possible answers **3.** BC, CD **4.** AB, BC, CD, DA, AC **5.** $\angle BAC$, $\angle DAC$, $\angle ABC$, $\angle ADC$, $\angle BCA$, $\angle DCA$ **6.** 30° centre **7.** 90° right **8.** 120° obtuse **9.** obtuse 165° **10.** 180° straight **11.** 90° right **12.** 41° **13.** 12° **14.** 133° **15.** 48° **16.** $\angle p = 139°$, $\angle x = 49°$, $\angle y = 90°$, $\angle z = 41°$ **17.** $\angle w = 58°$, $\angle x = 58°$, $\angle y = 60°$, $\angle z = 60°$ **18.** $\angle a = 23°$, $\angle b = 23°$, $\angle c = 44°$, $\angle d = 46°$

19.

20.



21. pentagon **22.** octagon **23.** SAS; XY = WV, $\angle Y = \angle V$, $\angle X = \angle W$

Extension Chapter 3: Geometry

1. a) star **2. a)** square **b)** rectangles, triangles **c)** square **3.** AFEC **4.** BFEC **5. a)** 60° **b)** 120° **c)** 60° **d)** 30° **6. a)** triangle **b)** $\triangle CED$ **c)** SAS; BF = CE, BG = CD, FG = ED, $\angle BGF = \angle CDE$, $\angle FBG = \angle ECD$, $\angle BFG = \angle CED$ **7.** H **8.** W **9–11.** Answers will vary.

CHAPTER 4: Perimeter and Area

4.1 Perimeter

1. 10 cm **2.** 7.3 cm **3.** 7.4 cm **4.** 8.2 cm **5.** 25.2 cm **6.** 36 cm **7.** 39.8 cm **8.** 50 cm **9.** 117 cm **10.** 63.2 cm **11.** 4.7 cm **12.** 2.6 m **13.** 16.2 cm **14.** 11.2 cm

	a	*b*	*c*	*P*
15.	11.4	8.6	6.8	26.8
16.	6.2	11.5	14.4	32.1
17.	8.1	5.7	7.6	21.4
18	23	7.8	17.6	48.4

	a	*b*	*c*	*d*	*P*
19.	8.9	33.1	12.8	7.6	62.4
20.	11.6	17.8	8.5	12.3	50.2
21.	26.2	11.7	27.2	18.4	83.5
22.	11	2.4	6.8	12.7	32.9

4.2 Perimeters of Polygons

1. 75 cm **2.** 43.4 cm **3.** 80.1 cm **4.** 122.4 cm **5.** 10.5 cm **6.** 9 cm **7.** 3.84 cm **8.** 11.5 cm **9.** 7.85 cm **10.** 36.6 cm **11.** 17.8 cm **12.** 42 cm

	l	*w*	*P*
13.	8	4	24
14.	3.6	4	15.2
15.	10	8	36
16.	7.1	6.2	26.6

17. 69.4 m **18.** 109.6 m **19.** 3419.8 m **20.** 281 m

4.3 Circumference of a Circle

1. $d = 3.0$ cm, $C = 9.4$ cm **2.** $d = 2.2$ cm, $C = 6.9$ cm **3.** $d = 2.7$ cm, $C = 8.5$ cm **4.** 29.83 cm **5.** 87.92 cm **6.** 42.704 cm **7.** 21.352 m **8.** 55.892 cm **9.** 45.53 cm **10.** 19.5 cm **11.** 75.046 mm **12.** 18 mm **13.** 11.618 m **14.** 76.7 m

4.4 Problem Solving: Use a Formula

1. $h = 4s$ **2. a)** 288 m **b)** 188 m **c)** 108 m **d)** 144 m **3. a)** 21°C **b)** 40.5°C **c)** 75°C **d)** 51°C **4. a)** 6.2 s **b)** 10.6 s **c)** 3.3 s **5. a)** 200 km **b)** 320 km **c)** 480 km **d)** 440 km

4.5 Area of a Rectangle and Square

1. 44.8 m^2 **2.** 144.48 cm^2 **3.** 65.96 cm^2 **4.** 50.41 cm^2 **5.** 169 m^2

	l	*w*	*A*
6.	2.4	1.8	4.32
7.	14.4	6.2	89.28
8.	4.3	6.7	28.81

	s	*A*
9.	4.5	20.25
10.	18	324
11.	17.2	295.84

12. 300 m^2 **13.** 1.44 m^2 **14.** 50 m
15. a) 21 cm^2 **b)** 28 cm^2 **c)** 35 cm^2 **d)** 35 cm^2

4.6 Area of a Parallelogram

1. 6.12 cm^2 2. 4.68 cm^2 3. 410.8 cm^2 4. 16.32 cm^2
5. 26.4 cm^2 6. 62.22 cm^2

	b	h	A
7.	12.5	6.4	80
8.	2.4	13.5	32.4
9.	1.15	26.4	30.36
10.	18	7.6	136.8

11. 6.4 cm 12. 16 cm 13. 12.5 m 14. a) 14.1 m^2 b) 145.7 m^2

4.7 Area of a Triangle

1. 150 cm^2 2. 150 cm^2 3. 75 cm^2 4. 75 cm^2
5. 13.5 cm^2 6. 67.1 cm^2 7. 17.55 cm^2 8. 44.1 cm^2
9. 115.26 cm^2

	b	h	a
10.	4.6	10	23
11.	7	8.4	29.4
12.	6.5	5.2	16.9
13.	14.4	10.5	75.6
14.	17	9.8	83.3

15. a) 18 m^2 b) 132 m^2

4.8 Problem Solving: Use Logic

1. Shawn, Aisha, Emily, Armand, Ferhan, Brian
2. Miguel: 14; JoAnne: 13; David: 9
3. Diana: cat; Colin: hamster; Hannah: parrot; Paulo: dog 4. quarter, penny, dollar, dime, nickel
5. Sue: boat; Marcie: taxi; Anthony: plane; Alexis: bus 6. 20

4.9 Area of a Circle

1. 314 cm^2 2. 63.6 cm^2 3. 30.2 cm^2 4. 490.6 cm^2
5. 113.0 m^2 6. 84.9 m^2 7. 124.6 cm^2 8. 459.7 cm^2
9. 2550.5 m^2 10. 346.2 m^2 11. 181.4 cm^2
12. 563.8 cm^2 13. 401.92 cm^2 14. 628 cm^2
15. 303.795 cm^2 16. 452.16 cm^2 17. 31.2 cm^2
18. 196 cm^2

4.10 Area of Composite Figures

1. 253.6 cm^2 2. 125 cm^2 3. 231.75 m^2 4. 70 cm^2
5. 2313 cm^2 6. 22.44 m^2 7. 83.2 cm^2 8. 87.48 cm^2
9. 26.8 m^2 10. 62.5 cm^2

4.11 Working with Perimeter and Area

1. a) 28 338.5 cm^2 b) 596.6 cm c) $17.34
2. a) 330 cm by 220 cm b) 1100 cm
c) 72 600 cm^2 3. 154 cm^2 4. 2100 cm^2
5. a) 210.52 cm b) 2632.68 cm^2 6. a) 187.8 cm
b) 2189.48 cm^2 7. a) 1256 cm^2 b) 344 cm^2

4.12 Problem Solving: Use a Table

1. a) 18 years b) 7.5 c) grizzly bear d) bobcat
2. $17 3. 1–25: $5.50; 26–50: $5.25; 51–75: $5.00; 76–100: $4.75; 101–125: $4.50; 126–150: $4.25; 151–175: $4.00; 176–200: $3.75; 201–225: $3.50; 226 and up: $3.25 4. a) $380 b) $637.50 c) $712.50 d) $975
5.

Team	Won	Lost	Tied	Points
Armstrong	3	0	0	6
Berkley	0	1	2	2
Castlewiev	1	1	1	3
Dunsmore	0	2	1	1

Test One Chapter 4: Perimeter and Area

1. 19.3 cm 2. 68.8 m 3. 38.936 cm 4. 27.04 cm^2
5. 103.18 m^2 6. 26.52 m^2 7. 33 cm^2 8. 78.5 cm^2
9. P = 70 cm, A = 219 cm^2 10. 40.9 m^2

Test Two Chapter 4: Perimeter and Area

1. 52.4 cm 2. 23.9 m 3. 23.3 cm 4. 49 cm^2
5. 459.7 m^2 6. 2.3 cm^2 7. 55.0 cm^2 8. 5.6 m^2
9. P = 68.4 cm, A = 129.38 cm^2 10. 247.74 m^2

Extension Chapter 4: Geometry

1. 18 units 2. Answers will vary.
3. a) Answers will vary. 0.5 m by 0.5 m, 0.25 m by 0.75 m are 2 possibilities b) Answers will vary. 0.25 m^2, 0.1875 m^2 4. 14.13 m 5. 3 rolls
6. a) 113.04 cm^2 b) 72 cm^2 c) 192 cm^2
d) 2448.96 cm^2 7. a) A: 7 cm by 7 cm; B: 7 cm by 12 cm; C: 7 cm by 14 cm; D: 7 cm by 19 cm
b) 14 cm by 26 cm; Area = 364 cm^2

CHAPTER 5: Fractions

5.1 Fractions and Mixed Numbers

1. $\frac{11}{24}$ 2. $\frac{7}{16}$ 3. $\frac{7}{10}$ 4. $\frac{7}{15}$ 5. $2\frac{5}{6}$, $\frac{17}{6}$ 6. $1\frac{3}{8}$, $\frac{11}{8}$
7. $3\frac{1}{4}$, $\frac{13}{4}$ 8. $\frac{9}{10}$ 9. $1\frac{5}{6}$ 10. $3\frac{2}{3}$ 11. $3\frac{2}{7}$ 12. $4\frac{1}{4}$
13. $5\frac{1}{2}$ 14. $3\frac{4}{5}$ 15. $2\frac{4}{9}$ 16. $3\frac{1}{4}$ 17. $\frac{19}{6}$ 18. $\frac{7}{4}$ 19. $\frac{37}{8}$
20. $\frac{20}{7}$ 21. $\frac{13}{2}$ 22. $\frac{17}{9}$ 23. Answers will vary.
Diagram will show $\frac{7}{10}$. 24. $\frac{37}{60}$ 25. $\frac{79}{12}$, $6\frac{7}{12}$

5.2 Equivalent Fractions

1. $\frac{2}{3}$, $\frac{4}{6}$ 2. $\frac{1}{2}$, $\frac{4}{8}$ 3. $\frac{3}{4}$, $\frac{12}{16}$ 4–7. Answers will vary.