MATHLETICS

# Circles and Cylinders

Teacher Book - Series 1-1

Mathletics Instant Workbooks

# Circles and cylinders

## Topic Test — PART A

**Instructions** This part consists of 12 multiple-choice questions
Each question is worth 1 mark
Fill in only ONE CIRCLE for each question
Calculators are NOT allowed

**Time allowed: 15 minutes** **Total marks = 12**

| | | | | | | Marks |
|---|---|---|---|---|---|---|
| **1** | The circumference of a circle is given by the formula | | | | | |
| | (A) $\frac{2\pi}{r}$ | (B) $\frac{2\pi}{d}$ | (C) $2\pi r$ | (D) $2\pi d$ | | 1 |
| **2** | The area of a circle is given by the formula | | | | | |
| | (A) $\pi r^2$ | (B) $\pi d^2$ | (C) $\frac{\pi}{r^2}$ | (D) $\frac{\pi}{d^2}$ | | 1 |
| **3** | The exact value of $\pi$ is | | | | | |
| | (A) 3.14 | (B) 3.142 | (C) $\frac{22}{7}$ | (D) none of these | | 1 |
| **4** | The relationship between diameter and radius is | | | | | |
| | (A) $d = 2r$ | (B) $r = 2d$ | (C) $rd = 2$ | (D) none of these | | 1 |
| **5** | A quadrant is | | | | | |
| | (A) $\frac{3}{4}$ of a circle | (B) $\frac{1}{2}$ of a circle | (C) $\frac{1}{4}$ of a circle | (D) none of these | | 1 |
| **6** | The circumference of a circle of radius 7 cm is closest to | | | | | |
| | (A) 44 cm | (B) 46 cm | (C) 48 cm | (D) 50 cm | | 1 |
| **7** | The area of a circle of diameter 28 cm correct to the nearest whole number equals | | | | | |
| | (A) 610 $cm^2$ | (B) 616 $cm^2$ | (C) 622 $cm^2$ | (D) none of these | | 1 |
| **8** | The volume of a cylinder with a radius r and height h equals | | | | | |
| | (A) $\pi^2 rh$ | (B) $\pi rh^2$ | (C) $\pi r^2 h$ | (D) $\pi rh$ | | 1 |
| **9** | The radius of a circle is 12 cm. Its diameter equals | | | | | |
| | (A) 6 cm | (B) 12 cm | (C) 24 cm | (D) $12\pi$ cm | | 1 |
| **10** | The area of a circle of radius 3 cm is approximately equal to | | | | | |
| | (A) 27 $cm^2$ | (B) 28 $cm^2$ | (C) 29 $cm^2$ | (D) none of these | | 1 |
| **11** | A semicircle equals | | | | | |
| | (A) a full circle | (B) half the circle | (C) a quarter of a circle | (D) one third of a circl | | 1 |
| **12** | A chord cuts the circle at | | | | | |
| | (A) 1 point | (B) 2 points | (C) 3 points | (D) no point | | 1 |

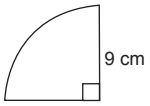
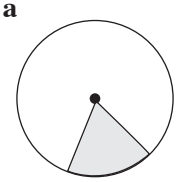
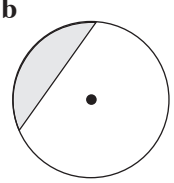
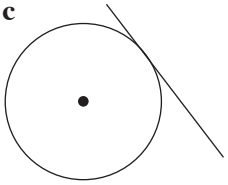
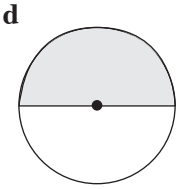
**Total marks achieved for PART A** 12

# Circles and cylinders

## Topic Test — PART B

**Instructions** This part consists of 12 questions
Each question is worth 1 mark
Write answers in the answers-only column

**Time allowed: 20 minutes** **Total marks = 12**

| Questions | Answers only | Marks |
|---|---|---|
| **1** Find the perimeter of a circle of radius equal to 21 cm, correct to two decimal places. | _____ | 1 |
| **2** Find the area of a circular pond with a diameter of 4 metres, correct to two decimal places. | _____ | 1 |
| **3** What fraction of the area of a circle is this sector?   | _____ | 1 |
| **4** Find the area of a circle of radius 6.34 cm, correct to two decimal places. | _____ | 1 |
| **5** The radius of the earth is 6400 km, find its circumference, correct to one decimal place. | _____ | 1 |
| **6** Find the diameter of a circle that has a circumference of 40 cm, correct to two decimal places. | _____ | 1 |
| **7** Calculate the perimeter of this quadrant.   | _____ | 1 |
| **8** If the diameter of a circle is 24 cm, what is its radius? | _____ | 1 |
| **9** Write the formula for the area of a circle. | _____ | 1 |
| **10** Write the value of $\pi$ correct to two decimal places. | _____ | 1 |
| **11** A record has a diameter of 32 cm. What is its area to the nearest $cm^2$? | _____ | 1 |
| **12** Name the part of the circle in the following diagrams. | **a** _____ | 4 |
| **a**  **b**  **c**  **d**  | **b** _____ **c** _____ **d** _____ | |

**Total marks achieved for PART B** 12

# Answers – Circles and cylinders

**Page 66** **1** **a** circle **b** centre **c** diameter **d** radius **e** arc **f** chord **g** semicircle **h** minor segment **i** major segment **j** sector **k** tangent **l** secant **m** circumference **n** concentric circles **2** **a** $\frac{1}{4}$ **b** $\frac{3}{4}$ **c** $\frac{1}{8}$ **d** $\frac{1}{3}$ **3** **a** 9 cm **b** 24 cm

**Page 67** **1** **a** 25.1 cm **b** 18.8 cm **c** 37.7 cm **d** 37.7 cm **e** 47.1 cm **f** 25.1 cm **2** **a** 44 cm **b** 88 cm **c** 132 cm **d** 198 cm **e** 220 cm **f** 154 cm **3** **a** 12.6 cm **b** 31.4 cm **c** 56.5 cm **d** 44.0 cm **e** 81.6 cm **f** 100 cm **4** **a** 21.42 cm **b** 71.98 cm **c** 33.71 cm

**Page 68** **1** **a** 28.3 $cm^2$ **b** 78.5 $cm^2$ **c** 254.5 $cm^2$ **d** 132.7 $cm^2$ **e** 227.0 $cm^2$ **f** 283.5 $cm^2$ **2** **a** 154 $cm^2$ **b** 1386 $cm^2$ **c** 3850 $cm^2$ **d** 154 $cm^2$ **e** 616 $cm^2$ **f** 2464 $cm^2$ **3** **a** 201 $cm^2$ **b** 314 $cm^2$ **c** 804 $cm^2$ **d** 380 $cm^2$ **e** 452 $cm^2$ **f** 531 $cm^2$ **4** **a** 50.3 $cm^2$ **b** 330.3 $cm^2$ **c** 692.1 $cm^2$

**Page 69** **1** **a** 69.1 cm **b** 241.9 cm **c** 75.4 cm **2** **a** 254.47 $cm^2$ **b** 2290.22 $cm^2$ **c** 153.94 $cm^2$ **3** **a** 40.0 cm **b** 73.7 cm **c** 35.0 cm **4** **a** 54.54 $cm^2$ **b** 41.10 $cm^2$ **c** 202.07 $cm^2$ **d** 98.17 $cm^2$ **e** 210.90 $cm^2$ **f** 289.16 $cm^2$

**Page 70** **1** **a** 169.65 $cm^3$ **b** 636.17 $cm^3$ **c** 603.19 $cm^3$ **d** 807.01 $cm^3$ **e** 2488.14 $cm^3$ **f** 1696.46 $cm^3$ **g** 3820.18 $cm^3$ **h** 844.30 $cm^3$ **i** 706.86 $cm^3$ **2** **a** 4477 $cm^3$ **b** 848 $cm^3$ **c** 1532 $cm^3$

**Page 71** **1** 175.9 m **2** 2463 $m^2$ **3** 35 cm **4** 2412.7 $cm^3$ **5** 3183.1 $cm^2$ **6** 56.55 cm **7** 39.58 m **8** 157.1 cm **9** 1017.88 $cm^2$ **10** 615.75 $m^2$ **11** 1:4 **12** 213.6 cm **13** 7.07 $m^2$ **14** 9.42 m

**Page 72** **1** C **2** A **3** D **4** A **5** C **6** A **7** B **8** C **9** C **10** B **11** B **12** B

**Page 73** **1** 131.95 cm **2** 12.57 $m^2$ **3** $\frac{1}{6}$ **4** 126.28 $cm^2$ **5** 40 212.4 km **6** 12.73 cm **7** 32.14 cm **8** 12 cm **9** $A = \pi r^2$ **10** 3.14 **11** 804 $cm^2$ **12** **a** sector **b** segment **c** tangent **d** semicircle