Use Circle Vocabulary

● Check Understanding

Possible answer: The diameter of the sandbox is 5 feet. Its circumference is approximately 15.7 feet. Its radius is 2.5 feet.

RECORDING SHEET

The shape of each pizza is a **circle**. There are different ways to measure the size of a circle. You can find its **diameter**, or the distance across a circle through its center. You can find its **circumference**, or the distance around the circle. You can also find its **area**, or the amount of space inside the circle.

Mary decides to calculate the area of each pizza to compare their sizes. She uses the formula $A = \pi r^2$. In this formula, the symbol π represents a constant called **pi**. It is the ratio of the circumference to the diameter of any circle and has an approximate value of **3.14**. The variable *r* represents the **radius**, which is the distance from the **center** of a circle to any point on the circle. The value of *r* for the small pizza is **6** inches, and for the large pizza it is **8** inches.

The approximate area of the small pizza is **113.04** in.^{2}. For the large pizza it is **200.96** in.^{2}. This means that the large pizza is approximately **87.92** in.^{2} bigger than the small pizza.

●● Check Understanding

Possible answer: The diameter of the sandbox is 5 feet. Its circumference is approximately 15.7 feet. Its area is approximately 19.625 square feet.

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Use Circle Vocabulary *continued*

Check Understanding

Possible answer: The diameter of the sandbox is 5 feet. Its circumference is approximately 15.7 feet. Its area is approximately 19.625 square feet.

RECORDING SHEET

The shape of each pizza is a **circle**. There are different ways to measure the size of a circle. You can find its **diameter**, or the distance across a circle through its **center**. You can find its **circumference**, or the distance around the circle. You can also find its **area**, or the amount of space inside the circle.

Mary decides to calculate the area of each pizza to compare their sizes. She uses the formula $\boldsymbol{A = \pi r^2}$. In this formula, the symbol π represents a constant called **pi**. It is the **ratio** of the **circumference** to the **diameter** of any circle and has an approximate value of **3.14**. The variable *r* represents the **radius**, which is the distance from the **center** of a circle to any point on the circle. The value of *r* for the small pizza is **6** inches, and for the large pizza it is **8** inches.

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Match Prisms with Surface Area

● Check Understanding

No; Possible explanation: The equation is missing the expression for the area of the rectangular side that is 3 in. wide and 4 in. long. That expression is (3×4). The surface area does not match because the surface area of the prism is 60 in.^{2}, not 48 in.^{2}.

ACTIVITY ANSWERS

Prism A:

$2(3 \cdot 4) + 2(4 \cdot 3) + 2(3 \cdot 3) = 66$ in.^{2}

Prism B:

$2\left[\frac{1}{2}(5 \cdot 3)\right] + (5 \cdot 6) + 2(4 \cdot 6) = 93$ in.^{2}

Prism C:

$2(4 \cdot 4) + 2(4 \cdot 3) + 2(4 \cdot 3) = 80$ in.^{2}

Prism D:

$2\left[\frac{1}{2}(4 \cdot 3)\right] + (4 \cdot 6) + (5 \cdot 6) + (3 \cdot 6) = 84$ in.^{2}

Prism E:

$2(5 \cdot 3) + 2(3 \cdot 4) + 2(5 \cdot 4) = 94$ in.^{2}

Prism F:

$2\left[\frac{1}{2}(3 \cdot 4)\right] + (3 \cdot 4) + 2(5 \cdot 4) = 64$ in.^{2}

●● Check Understanding

No; Possible explanation: The equation is missing the expression for the area of the rectangular side that is 3 in. wide and $9\frac{1}{6}$ in. long. That expression is $\left(3 \times \frac{55}{6}\right)$. The surface area does not match because the surface area of the prism is 122 in.^{2}, not $94\frac{1}{2}$ in.^{2}.

ACTIVITY ANSWERS

Prism A:

$2(6 \cdot 8) + 2\left(8 \cdot \frac{3}{2}\right) + 2\left(6 \cdot \frac{3}{2}\right) = 138$ in.^{2}

Prism B:

$2\left[\frac{1}{2}(3 \cdot 4)\right] + (4 \cdot 4.5) + (3 \cdot 4.5) + (5 \cdot 4.5) = 66$ in.^{2}

Prism C:

$2(3 \cdot 5.5) + 2(3 \cdot 4) + 2(4 \cdot 5.5) = 101$ in.^{2}

Prism D:

$2\left[\frac{1}{2}(4 \cdot 3)\right] + \left(3 \cdot \frac{28}{3}\right) + \left(4 \cdot \frac{28}{3}\right) + \left(5 \cdot \frac{28}{3}\right) = 124$ in.^{2}

Prism E:

$2(1 \cdot 6) + 2(6 \cdot 8) + 2(1 \cdot 8) = 124$ in.^{2}

Prism F:

$2\left[\frac{1}{2}(3 \cdot 4)\right] + (5 \cdot 7.5) + (3 \cdot 7.5) + (4 \cdot 7.5) = 102$ in.^{2}

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Match Prisms with Surface Area *continued*

Check Understanding

No; Possible explanation: The equation is including all six sides of the cube, but the bottom should not be included. The surface area does not match because the surface area of the prism is 216 in.^{2}, not 232 in.^{2}.

ACTIVITY ANSWERS

Figure A:

$2(4 \cdot 3) + 2(4 \cdot 4) + (3 \cdot 7) + (3 \cdot 5) + 2\left[\frac{1}{2}(4 \cdot 3)\right] =$ 104 in.^{2}

Figure B:

$2[3(4 \cdot 3)] + 2[2(5 \cdot 3)] + 2[2(4 \cdot 5)] = 212$ in.^{2}

Figure C:

$(6 \cdot 8) + 2(6 \cdot 5) + 2(4 \cdot 6) + 2(4 \cdot 8) + 2\left[\frac{1}{2}(8 \cdot 3)\right] =$ 244 in.^{2}

Figure D:

$5(3 \cdot 3) + 2(5 \cdot 5) + 4(4 \cdot 5) - (3 \cdot 3) = 166$ in.^{2}

Figure E:

$2(5 \cdot 4) + 3(4 \cdot 3) + 2(5 \cdot 3) + (4 \cdot 1) + 2(3 \cdot 1) + 2\left[\frac{1}{2}(4 \cdot 3)\right] = 128$ in.^{2}

Figure F:

$2(5 \cdot 5) + 5(3 \cdot 5) + (3 \cdot 3) + 2\left[\frac{1}{2}(4 \cdot 3)\right] - (4 \cdot 3) =$ 134 in.^{2}

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