Question ID 724c6ca2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium
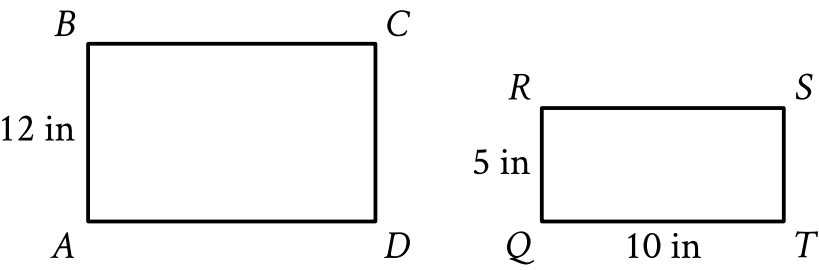
Note: Figure not drawn to scale.

Rectangles $ABCD$ and $QRST$ shown are similar, where A, B, C, and D correspond to Q, R, S, and T, respectively. What is the length, in inches (in), of $\overline{AD}$?

A. 60

B. 24

C. 17

D. 10

Correct Answer: B

Rationale

Choice B is correct. It's given that rectangles $ABCD$ and $QRST$ are similar, where A, B, C, and D correspond to Q, R, S, and T, respectively. It follows that $\overline{AB}$ corresponds to $\overline{QR}$ and $\overline{AD}$ corresponds to $\overline{QT}$. If two rectangles are similar, then the lengths of their corresponding sides are proportional. It's given in the figure that the length of $\overline{AB}$ is 12 inches, the length of $\overline{QR}$ is 5 inches, and the length of $\overline{QT}$ is 10 inches. If x is the length, in inches, of $\overline{AD}$, then $\frac{12}{5}$ is equivalent to $\frac{x}{10}$. Therefore, the value of x can be found using the equation $\frac{12}{5} = \frac{x}{10}$. Multiplying each side of this equation by 10 yields $\frac{120}{5} = x$, or $24 = x$. Therefore, the length, in inches, of $\overline{AD}$ is 24.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect. This is the length, in inches, of $\overline{QT}$, not $\overline{AD}$.

Question Difficulty: Medium

Question ID dbb97818

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: dbb97818

A cylinder has a diameter of 8 inches and a height of 12 inches. What is the volume, in cubic inches, of the cylinder?

A. 16π

B. 96π

C. 192π

D. 768π

ID: dbb97818 Answer

Correct Answer: C

Rationale

Choice C is correct. The base of a cylinder is a circle with a diameter equal to the diameter of the cylinder. The volume, V, of a cylinder can be found by multiplying the area of the circular base, A, by the height of the cylinder, h, or $V = Ah$. The area of a circle can be found using the formula $A = \pi r^2$, where r is the radius of the circle. It's given that the diameter of the cylinder is 8 inches. Thus, the radius of this circle is 4 inches. Therefore, the area of the circular base of the cylinder is $A = \pi(4)^2$, or 16π square inches. It's given that the height h of the cylinder is 12 inches. Substituting 16π for A and 12 for h in the formula $V = Ah$ gives $V = 16\pi(12)$, or 192π cubic inches.

Choice A is incorrect. This is the area of the circular base of the cylinder.

Choice B is incorrect and may result from using 8, instead of 16, as the value of r^2 in the formula for the area of a circle.

Choice D is incorrect and may result from using 8, instead of 4, for the radius of the circular base.

Question Difficulty: Medium

Question ID 4ee1c94d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: 4ee1c94d

A right circular cylinder has a volume of 432 cubic centimeters. The area of the base of the cylinder is 24 square centimeters. What is the height, in centimeters, of the cylinder?

A. 18

B. 24

C. 216

D. $10,368$

ID: 4ee1c94d Answer

Correct Answer: A

Rationale

Choice A is correct. The volume, V, of a right circular cylinder is given by the formula $V = \pi r^2 h$, where πr^2 is the area of the base of the cylinder and h is the height. It's given that a right circular cylinder has a volume of 432 cubic centimeters and the area of the base is 24 square centimeters. Substituting 432 for V and 24 for πr^2 in the formula $V = \pi r^2 h$ yields $432 = 24h$. Dividing both sides of this equation by 24 yields $18 = h$. Therefore, the height of the cylinder, in centimeters, is 18.

Choice B is incorrect. This is the area of the base, in square centimeters, not the height, in centimeters, of the cylinder.

Choice C is incorrect. This is the height, in centimeters, of a cylinder if its volume is 432 cubic centimeters and the area of its base is 2, not 24, cubic centimeters.

Choice D is incorrect. This is the height, in centimeters, of a cylinder if its volume is 432 cubic centimeters and the area of its base is $\frac{1}{24}$, not 24, cubic centimeters.

Question Difficulty: Medium

Question ID 5714ab73

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

The length of the edge of the base of a right square prism is 6 units. The volume of the prism is $2,880$ cubic units. What is the height, in units, of the prism?

A. $4\sqrt{30}$

B. 36

C. $24\sqrt{5}$

D. 80

Correct Answer: D

Rationale

Choice D is correct. The volume, V, of a right square prism is given by the formula $V = s^2h$, where s represents the length of the edge of the base and h represents the height of the prism. It's given that the volume of a right square prism is $2,880$ cubic units and the length of the edge of the base is 6 units. Substituting $2,880$ for V and 6 for s in the formula $V = s^2h$ yields $2,880 = (6^2)h$, or $2,880 = 36h$. Dividing both sides of this equation by 36 yields $80 = h$. Therefore, the height, in units, of the prism is 80.

Choice A is incorrect. This is the height, in units, of a right square prism where the length of the edge of the base is 6 units and the volume of the prism is $144\sqrt{30}$, not $2,880$, units.

Choice B is incorrect. This is the area, in square units, of the base, not the height, in units, of the prism.

Choice C is incorrect. This is the height, in units, of a right square prism where the length of the edge of the base is 6 units and the volume of the prism is $864\sqrt{5}$, not $2,880$, units.

Question Difficulty: Medium

Question ID bccbe438

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: bccbe438

A triangular prism has a height of 8 centimeters (cm) and a volume of 216 cm^3. What is the area, in cm^2, of the base of the prism? (The volume of a triangular prism is equal to Bh, where B is the area of the base and h is the height of the prism.)

ID: bccbe438 Answer

Correct Answer: 27

Rationale

The correct answer is 27. It's given that a triangular prism has a volume of 216 cubic centimeters (cm^3) and the volume of a triangular prism is equal to Bh, where B is the area of the base and h is the height of the prism. Therefore, $216 = Bh$. It's also given that the triangular prism has a height of 8 cm. Therefore, $h = 8$. Substituting 8 for h in the equation $216 = Bh$ yields $216 = B(8)$. Dividing both sides of this equation by 8 yields $27 = B$. Therefore, the area, in cm^2, of the base of the prism is 27.

Question Difficulty: Medium

Question ID f8cb4ee2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium
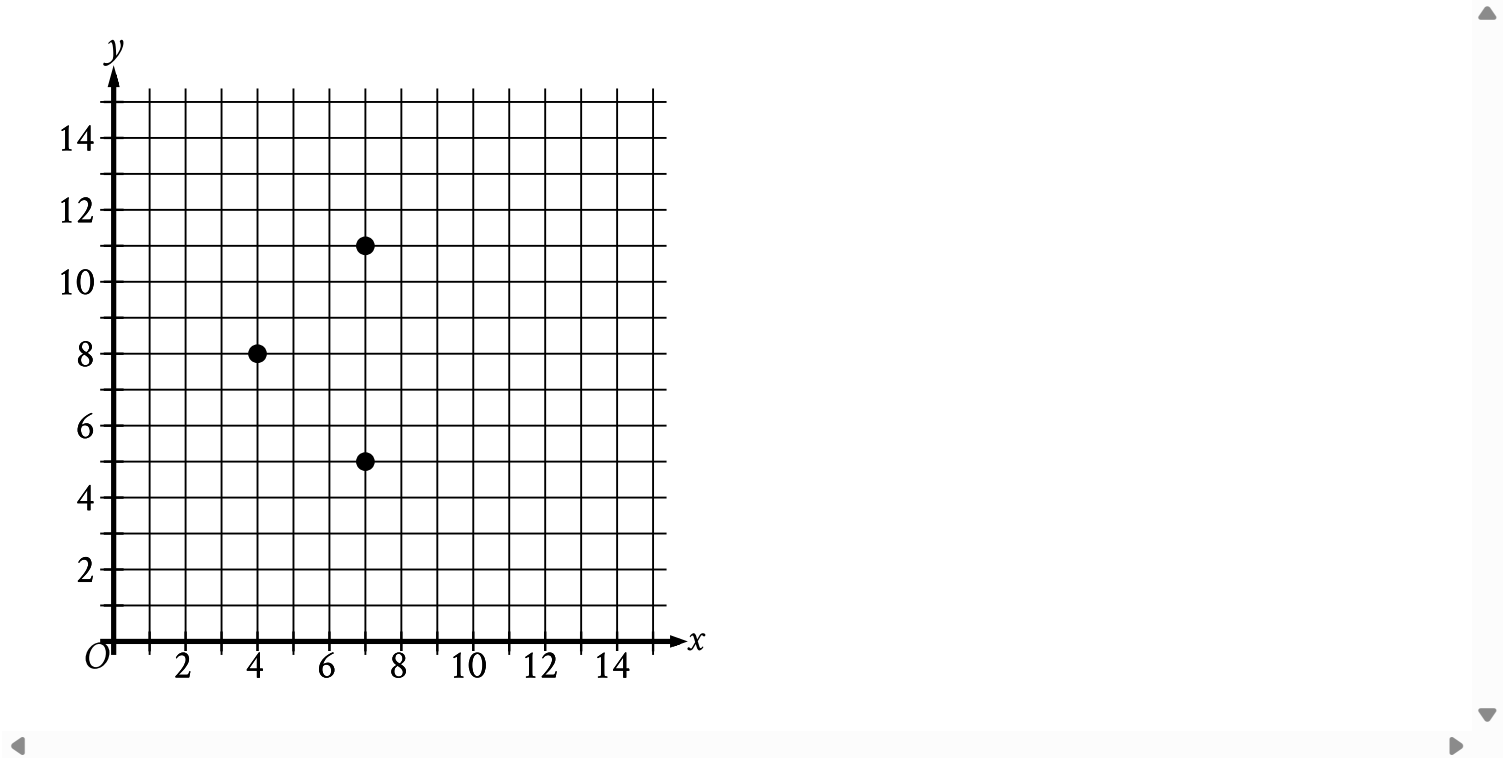
The three points shown define a circle. The circumference of this circle is $k\pi$, where k is a constant. What is the value of k?

A. 3

B. 6

C. 7

D. 9

Correct Answer: B

Rationale

Choice B is correct. It's given that the three points shown define a circle, so the center of that circle is an equal distance from each of the three points. The point $(7, 8)$ is halfway between the points $(7, 5)$ and $(7, 11)$ and is a distance of 3 units from each of those two points. The point $(7, 8)$ is also a distance of 3 units from $(4, 8)$. Because the point $(7, 8)$ is the same distance from all three given points, it must be the center of the circle. The radius of a circle is the distance from the center to any point on the circle. Since that distance is 3, it follows that the radius of the circle is 3. The circumference of a circle with radius r is equal to $2\pi r$. It follows that the circumference of the circle is $2(\pi)(3)$, or 6π. It's given that the circumference of the circle is $k\pi$. Therefore, the value of k is 6.

Choice A is incorrect. This is the radius of the circle, not the value of k in the expression $k\pi$.

Choice C is incorrect. This is the *x*-coordinate of the center of the circle, not the value of k in the expression $k\pi$.

Choice D is incorrect. This is the value of k for which $k\pi$ represents the area of the circle, in square units, not the circumference of the circle, in units.

Question Difficulty: Medium

Question ID f9c5558d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

Square X has a side length of 12 centimeters. The perimeter of square Y is 2 times the perimeter of square X. What is the length, in centimeters, of one side of square Y?

A. 6

B. 10

C. 14

D. 24

Correct Answer: D

Rationale

Choice D is correct. The perimeter, P, of a square can be found using the formula $P = 4s$, where s is the length of each side of the square. It's given that square X has a side length of 12 centimeters. Substituting 12 for s in the formula for the perimeter of a square yields $P = 4(12)$, or $P = 48$. Therefore, the perimeter of square X is 48 centimeters. It's also given that the perimeter of square Y is 2 times the perimeter of square X. Therefore, the perimeter of square Y is $2(48)$, or 96, centimeters. Substituting 96 for P in the formula $P = 4s$ gives $96 = 4s$. Dividing both sides of this equation by 4 gives $24 = s$. Therefore, the length of one side of square Y is 24 centimeters.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Medium

Question ID f92d252b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: f92d252b

A right circular cylinder has a volume of 377 cubic centimeters. The area of the base of the cylinder is 13 square centimeters. What is the height, in centimeters, of the cylinder?

ID: f92d252b Answer

Correct Answer: 29

Rationale

The correct answer is 29. The volume, V, of a right circular cylinder is given by the formula $V = \pi r^2 h$, where r is the radius of the base of the cylinder and h is the height of the cylinder. Since the base of the cylinder is a circle with radius r, the area of the base of the cylinder is πr^2. It's given that a right circular cylinder has a volume of 377 cubic centimeters; therefore, $V = 377$. It's also given that the area of the base of the cylinder is 13 square centimeters; therefore, $\pi r^2 = 13$. Substituting 377 for V and 13 for πr^2 in the formula $V = \pi r^2 h$ yields $377 = 13h$. Dividing both sides of this equation by 13 yields $29 = h$. Therefore, the height of the cylinder, in centimeters, is 29.

Question Difficulty: Medium

Question ID 489aba1c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: 489aba1c

A circle has a circumference of 31π centimeters. What is the diameter, in centimeters, of the circle?

ID: 489aba1c Answer

Correct Answer: 31

Rationale

The correct answer is 31. The circumference of a circle is equal to $2\pi r$ centimeters, where r represents the radius, in centimeters, of the circle, and the diameter of the circle is equal to $2r$ centimeters. It's given that a circle has a circumference of 31π centimeters. Therefore, $31\pi = 2\pi r$. Dividing both sides of this equation by π yields $31 = 2r$. Since the diameter of the circle is equal to $2r$ centimeters, it follows that the diameter, in centimeters, of the circle is 31.

Question Difficulty: Medium

Question ID 9019ad99

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: 9019ad99

A triangle has a base length of 56 centimeters and a height of 112 centimeters. What is the area, in square centimeters, of the triangle?

A. 168

B. $1,568$

C. $3,136$

D. $6,272$

ID: 9019ad99 Answer

Correct Answer: C

Rationale

Choice C is correct. The area, A, of a triangle is given by the formula $A = \frac{1}{2}bh$, where b is the base length and h is the height of the triangle. It's given that a triangle has a base length of 56 centimeters and a height of 112 centimeters. Substituting 56 for b and 112 for h in the formula $A = \frac{1}{2}bh$ yields $A = \left(\frac{1}{2}\right)(56)(112)$, or $A = 3,136$. Therefore, the area, in square centimeters, of the triangle is $3,136$.

Choice A is incorrect. This is the value of $56 + 112$, not $\left(\frac{1}{2}\right)(56)(112)$.

Choice B is incorrect. This is the value of $\left(\frac{1}{4}\right)(56)(112)$, not $\left(\frac{1}{2}\right)(56)(112)$.

Choice D is incorrect. This is the value of $(56)(112)$, not $\left(\frac{1}{2}\right)(56)(112)$.

Question Difficulty: Medium

Question ID 0e8cf28f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: 0e8cf28f

A right circular cylinder has a height of 8 meters (m) and a base with a radius of 12 m. What is the volume, in m^3, of the cylinder?

A. 8π

B. 20π

C. 768π

D. $1{,}152\pi$

ID: 0e8cf28f Answer

Correct Answer: D

Rationale

Choice D is correct. The volume, V, of a right circular cylinder is given by $V = \pi r^2 h$, where r is the radius of the circular base and h is the height of the cylinder. It's given that the cylinder has a height of 8 meters and a base with a radius of 12 meters. Substituting 12 for r and 8 for h in $V = \pi r^2 h$ yields $V = \pi (12)^2 (8)$, or $V = 1{,}152\pi$. Therefore, the volume, in m^3, of the cylinder is $1{,}152\pi$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.
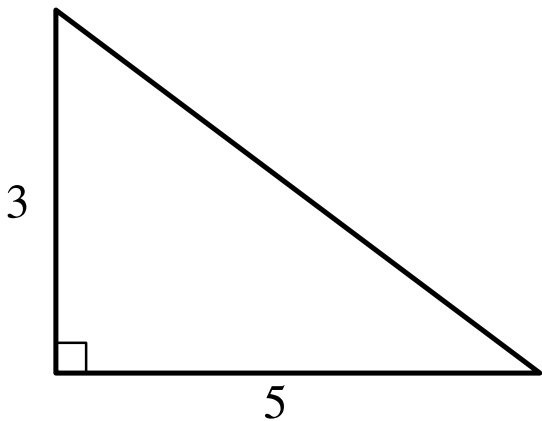
Choice C is incorrect. This is the volume, in m^3, of a cylinder with a radius of 8 meters and a height of 12 meters.

Question Difficulty: Medium

Question ID 919b2d08

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

3

5

Note: Figure not drawn to scale.

The figure shows the lengths, in inches, of two sides of a right triangle. What is the area of the triangle, in square inches?

Correct Answer: 7.5, 15/2

Rationale

The correct answer is $\frac{15}{2}$. The area, A, of a triangle is given by the formula $A = \frac{1}{2}bh$, where b is the length of the base of the triangle and h is the height of the triangle. In the right triangle shown, the length of the base of the triangle is 5 inches, and the height is 3 inches. It follows that $b = 5$ and $h = 3$. Substituting 5 for b and 3 for h in the formula $A = \frac{1}{2}bh$ yields $A = \frac{1}{2}(5)(3)$, which is equivalent to $A = \frac{1}{2}(15)$, or $A = \frac{15}{2}$. Therefore, the area of the triangle, in square inches, is $\frac{15}{2}$. Note that 15/2 and 7.5 are examples of ways to enter a correct answer.

Question Difficulty: Medium

Question ID af517132

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: af517132

A triangle has a base length of 10 centimeters and a corresponding height of 70 centimeters. What is the area, in square centimeters, of the triangle?

A. 700

B. 350

C. 175

D. 80

ID: af517132 Answer

Correct Answer: B

Rationale

Choice B is correct. The area, A, of a triangle is given by $A = \left(\frac{1}{2}\right)bh$, where b is the length of a base of the triangle and h is the corresponding height of the triangle. It's given that a triangle has a base length of 10 centimeters and a corresponding height of 70 centimeters. Substituting 10 for b and 70 for h in the formula $A = \left(\frac{1}{2}\right)bh$ yields $A = \left(\frac{1}{2}\right)(10)(70)$, or $A = 350$. Therefore, the area, in square centimeters, of the triangle is 350.

Choice A is incorrect. This is the product of the given base and height of the triangle, not its area.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect. This is the sum of the given base and height of the triangle, not its area.

Question Difficulty: Medium

Question ID e582b600

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: e582b600

A circle has a radius of 43 meters. What is the area, in square meters, of the circle?

A. $\frac{43\pi}{2}$

B. 43π

C. 86π

D. $1,849\pi$

ID: e582b600 Answer

Correct Answer: D

Rationale

Choice D is correct. The area, A, of a circle is given by the formula $A = \pi r^2$, where r is the radius of the circle. It's given that the circle has a radius of 43 meters. Substituting 43 for r in the formula $A = \pi r^2$ yields $A = \pi(43)^2$, or $A = 1,849\pi$. Therefore, the area, in square meters, of the circle is $1,849\pi$.

Choice A is incorrect. This is the area, in square meters, of a circle with a radius of $\sqrt{\frac{43}{2}}$ meters.

Choice B is incorrect. This is the area, in square meters, of a circle with a radius of $\sqrt{43}$ meters.

Choice C is incorrect. This is the circumference, in meters, of the circle.

Question Difficulty: Medium

Question ID 41b0fa3d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: 41b0fa3d

The length of each edge of a box is 29 inches. Each side of the box is in the shape of a square. The box does not have a lid. What is the exterior surface area, in square inches, of this box without a lid?

ID: 41b0fa3d Answer

Correct Answer: 4205

Rationale

The correct answer is $4,205$. The exterior surface area of a figure is the sum of the areas of all its faces. It's given that the box does not have a lid and that each side of the box is in the shape of a square. Therefore, the box consists of 5 congruent square faces. It's also given that the length of each edge is 29 inches. Let s represent the length of an edge of a square. It follows that the area of a square is equal to s^2. Therefore, the area of each of the 5 square faces is equal to 29^2, or 841, square inches. Since the box consists of 5 congruent square faces, it follows that the sum of the areas of all its faces, or the exterior surface area of this box without a lid, is $5(841)$, or $4,205$, square inches.

Question Difficulty: Medium

Question ID 221df55b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: 221df55b

The table gives the perimeters of similar triangles TUV and XYZ, where $\overline{TU}$ corresponds to $\overline{XY}$. The length of $\overline{TU}$ is 18.

	Perimeter
Triangle TUV	37
Triangle XYZ	333

What is the length of $\overline{XY}$?

A. 2

B. 18

C. 55

D. 162

ID: 221df55b Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that triangle XYZ is similar to triangle TUV. Therefore, each side of triangle XYZ is k times its corresponding side of triangle TUV, where k is a constant. It follows that the perimeter of triangle XYZ is k times the perimeter of triangle TUV. It's also given that $\overline{TU}$ corresponds to $\overline{XY}$ and the length of $\overline{TU}$ is 18. Let x represent the length of $\overline{XY}$. It follows that $x = 18k$. The table shows that the perimeters of triangles TUV and XYZ are 37 and 333, respectively. It follows that $333 = 37k$, or $9 = k$. Substituting 9 for k in the equation $x = 18k$ yields $x = (18)(9)$, or $x = 162$. Therefore, the length of $\overline{XY}$ is 162.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect. This is the length of $\overline{TU}$, not the length of $\overline{XY}$.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Medium

Question ID 1c15c90f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: 1c15c90f

A circle has a radius of 2.1 inches. The area of the circle is $b\pi$ square inches, where b is a constant. What is the value of b?

ID: 1c15c90f Answer

Correct Answer: 4.41, 441/100

Rationale

The correct answer is 4.41. The area, A, of a circle is given by the formula $A = \pi r^2$, where r is the radius of the circle. It's given that the area of the circle is $b\pi$ square inches, where b is a constant, and the radius of the circle is 2.1 inches. Substituting $b\pi$ for A and 2.1 for r in the formula $A = \pi r^2$ yields $b\pi = \pi(2.1^2)$. Dividing both sides of this equation by π yields $b = 4.41$. Therefore, the value of b is 4.41.

Question Difficulty: Medium

Question ID 04bbbda6

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: 04bbbda6

A sphere has a radius of $\frac{17}{5}$ feet. What is the volume, in cubic feet, of the sphere?

A. $\frac{5\pi}{17}$

B. $\frac{68\pi}{15}$

C. $\frac{32\pi}{5}$

D. $\frac{19,652\pi}{375}$

ID: 04bbbda6 Answer

Correct Answer: D

Rationale

Choice D is correct. The volume, V, of a sphere can be found using the formula $V = \frac{4}{3}\pi r^3$, where r is the radius of the sphere. It's given that the sphere has a radius of $\frac{17}{5}$ feet. Substituting $\frac{17}{5}$ for r in the formula $V = \frac{4}{3}\pi r^3$ yields $V = \frac{4}{3}\pi\left(\frac{17}{5}\right)^3$, which is equivalent to $V = \frac{4}{3}\pi\left(\frac{4,913}{125}\right)$, or $V = \frac{19,652\pi}{375}$. Therefore, the volume, in cubic feet, of the sphere is $\frac{19,652\pi}{375}$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect. This is the volume, in cubic feet, of a sphere with a radius of $\sqrt[3]{\frac{17}{5}}$ feet.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Medium

Question ID e5ba4117

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: e5ba4117

A right circular cylinder has a base diameter of 22 centimeters and a height of 6 centimeters. What is the volume, in cubic centimeters, of the cylinder?

A. 132π

B. 264π

C. 726π

D. $2{,}904\pi$

ID: e5ba4117 Answer

Correct Answer: C

Rationale

Choice C is correct. The volume, V, of a right circular cylinder is given by the formula $V = \pi r^2 h$, where r is the radius of the base of the cylinder and h is the height of the cylinder. It's given that a right circular cylinder has a height of 6 centimeters. Therefore, $h = 6$. It's also given that the cylinder has a base diameter of 22 centimeters. The radius of a circle is half the diameter of the circle. Since the base of a right circular cylinder is a circle, it follows that the radius of the base of the right circular cylinder is $\frac{22}{2}$, or 11, centimeters. Therefore, $r = 11$. Substituting 11 for r and 6 for h in the formula $V = \pi r^2 h$ yields $V = \pi(11)^2(6)$, which is equivalent to $V = \pi(121)(6)$, or $V = 726\pi$. Therefore, the volume, in cubic centimeters, of the cylinder is 726π.

Choice A is incorrect. This is the volume of a right circular cylinder that has a base diameter of $2\sqrt{22}$, not 22, centimeters and a height of 6 centimeters.

Choice B is incorrect. This is the volume of a right circular cylinder that has a base diameter of $4\sqrt{11}$, not 22, centimeters and a height of 6 centimeters.

Choice D is incorrect. This is the volume of a right circular cylinder that has a base diameter of 44, not 22, centimeters and a height of 6 centimeters.

Question Difficulty: Medium

Question ID 3b66e6a3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

Circle K has a radius of 4 millimeters (mm). Circle L has an area of 100π mm^2. What is the total area, in mm^2, of circles K and L?

A. 14π

B. 28π

C. 56π

D. 116π

Correct Answer: D

Rationale

Choice D is correct. The area, A, of a circle is given by the formula $A = \pi r^2$, where r represents the radius of the circle. It's given that circle K has a radius of 4 millimeters (mm). Substituting 4 for r in the formula $A = \pi r^2$ yields $A = \pi(4)^2$, or $A = 16\pi$. Therefore, the area of circle K is 16π mm^2. It's given that circle L has an area of 100π mm^2. Therefore, the total area, in mm^2, of circles K and L is $16\pi + 100\pi$, or 116π.

Choice A is incorrect. This is the sum of the radii, in mm, of circles K and L multiplied by π, not the total area, in mm^2, of the circles.

Choice B is incorrect. This is the sum of the diameters, in mm, of circles K and L multiplied by π, not the total area, in mm^2, of the circles.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Medium

Question ID 9c3d5225

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

Square A has side lengths that are 246 times the side lengths of square B. The area of square A is k times the area of square B. What is the value of k?

A. $60{,}516$

B. 492

C. 246

D. 123

ID: 9c3d5225 Answer

Correct Answer: A

Rationale

Choice A is correct. The area of a square is s^2, where s is the side length of the square. Therefore, the area of square B is b^2, where b is the side length of square B. It's given that square A has side lengths that are 246 times the side lengths of square B. Therefore, the side length of square A can be represented by the expression $246b$. It follows that the area of square A is $(246b)^2$, or $60{,}516b^2$. It's given that the area of square A is k times the area of square B, so $60{,}516b^2 = kb^2$. Therefore, the value of k is $60{,}516$.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Medium

Question ID 5c415b89

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: 5c415b89

A cube has an edge length of 41 inches. What is the volume, in cubic inches, of the cube?

A. 164

B. $1,681$

C. $10,086$

D. $68,921$

ID: 5c415b89 Answer

Correct Answer: D

Rationale

Choice D is correct. The volume, V, of a cube can be found using the formula $V = s^3$, where s is the edge length of the cube. It's given that a cube has an edge length of 41 inches. Substituting 41 inches for s in this equation yields $V = 41^3$ cubic inches, or $V = 68,921$ cubic inches. Therefore, the volume of the cube is $68,921$ cubic inches.

Choice A is incorrect. This is the perimeter, in inches, of the cube.

Choice B is incorrect. This is the area, in square inches, of a face of the cube.

Choice C is incorrect. This is the surface area, in square inches, of the cube.

Question Difficulty: Medium

Question ID dbe21855

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	Medium

ID: dbe21855

The length of each side of a square is 94 centimeters (cm). Which expression gives the area, in cm^2, of the square?

A. $2 \cdot 94$

B. $2 \cdot 94 \cdot 94$

C. $4 \cdot 94$

D. $94 \cdot 94$

ID: dbe21855 Answer

Correct Answer: D

Rationale

Choice D is correct. The area of a square is given by s^2, where s is the length of each side of the square. It's given that the length of each side of a square is $94 \, cm$. It follows that the area, in cm^2, of the square is $(94)^2$, or $94 \cdot 94$. Therefore, the expression that gives the area, in cm^2, of the square is $94 \cdot 94$.

Choice A is incorrect and may result from conceptual errors.

Choice B is incorrect and may result from conceptual errors.

Choice C is incorrect. This expression gives the perimeter, in cm, of the square.

Question Difficulty: Medium