2011-2012
Geometry, Semester 2

Instructional Materials for the WCSD Math Common Finals

The Instructional Materials are for students and teacher use and are aligned to the Math Common Final test blueprint for this course. When used as test practice, success on the Instructional Materials does not guarantee success on the district math common final.

Students can use these Instructional Materials to become familiar with the format and language used on the district common finals. Familiarity with standards vocabulary and interaction with the types of problems included in the Instructional Materials can result in less anxiety on the part of the students.

Teachers can use the Instructional Materials in conjunction with the course guides to ensure that instruction and content is aligned with what will be assessed. The Instructional Materials should not dictate the depth or full range of learning that should occur in the classroom.

1. Using a string a student decided to determine the diameter of a large trash can. If the string 60 inches long will wrap around the trash can, what is approximate diameter of the trash can?

A. 25 *inches*
B. 19.1 *inches*
C. 9.55 *inches*
D. 9 *inches*

2. What is the area of a circular pool that has a circumference of 100π feet?

A. $10\pi\ ft^2$
B. $50\pi\ ft^2$
C. $100\pi\ ft^2$
D. $2500\pi\ ft^2$

3. The diameter of a circular pizza pan is 18-inches. Two-thirds of the pizza is eaten by your friends. What is the approximate area of the pizza pan that is covered by the remaining pizza?

A. 170 in^2
B. 85 in^2
C. 54 in^2
D. 27 in^2

4. A circle has an arc length of 10 feet. The central angle formed is 60°. What is the area of the sector? (hint: find the radius first)

A. $\frac{150}{\pi}\ ft^2$

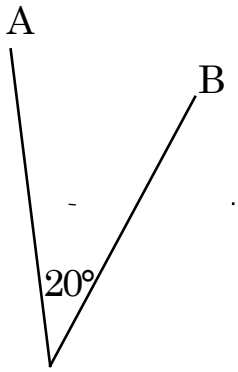
B. $\frac{\pi}{150}\ ft^2$

C. $\frac{\pi}{360}\ ft^2$

D. $\frac{900}{\pi}\ ft^2$

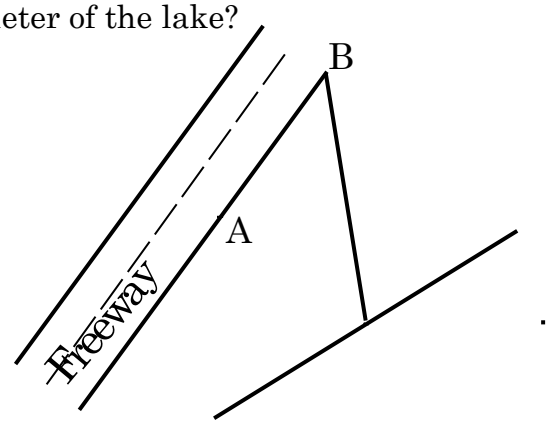
5. What is the length of the minor arc $\widehat{AB}$ in the circle with a radius of 45 cm ?

A. $20\pi\ cm$
B. $10\pi\ cm$
C. $5\pi\ cm$
D. $2\pi\ cm$



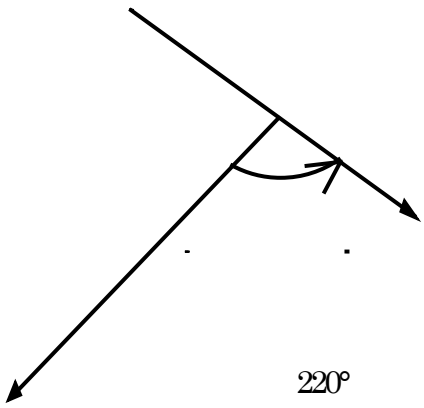
6. A freeway runs tangent to a circular lake. The distance from point B to the center of the lake is 100 miles. The distance from Point A to Point B on the freeway is 80 miles. What is the diameter of the lake?

A. 20 miles
B. 60 miles
C. 120 miles
D. 160 miles



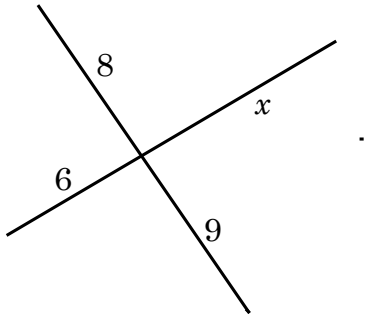
7. What is the measure of the inscribed angle, if the ray is tangent to the circle?

A. 360°
B. 220°
C. 110°
D. 55°



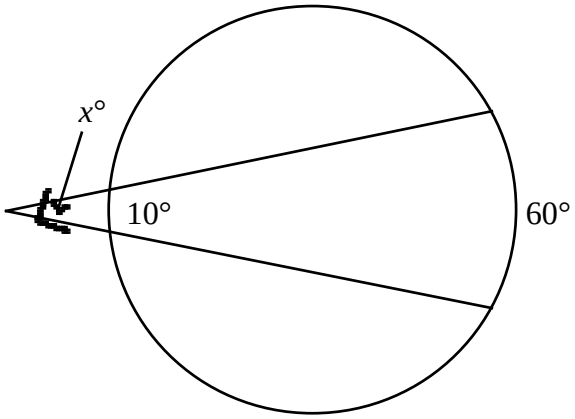
8. What is the length of x in the circle?

A. 12
B. 11
C. 9
D. 5



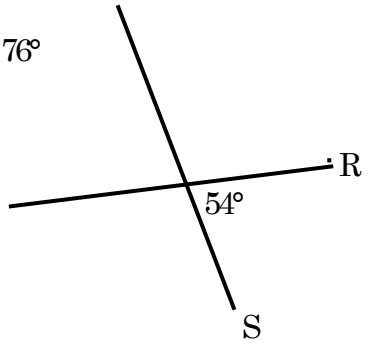
9. What is the measure of angle x?

A. 50°
B. 35°
C. 25°
D. 5°



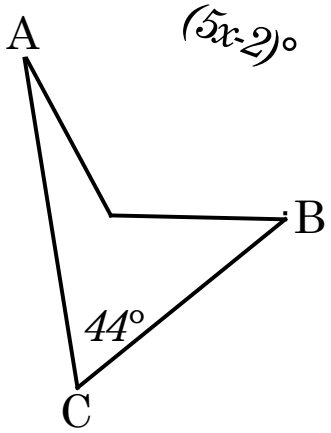
10. What is the measure of $\widehat{RS}$?

A. 54°
B. 38°
C. 32°
D. 27°



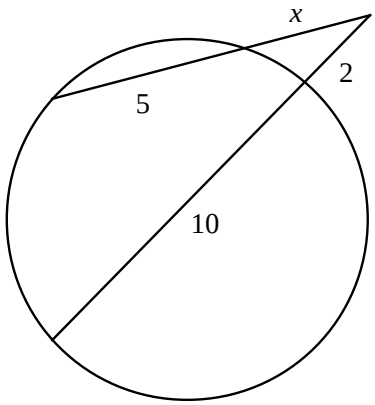
11. Given $AC = BC$ and $\angle ADB$ is a central angle, what is the value of x and $\widehat{BC}$?

A. $x = 18,\ \widehat{BC} = 136°$
B. $x = 9.2,\ \widehat{BC} = 88°$
C. $x = 18,\ \widehat{BC} = 88°$
D. $x = 9.2,\ \widehat{BC} = 136°$



12. What is the value of x ?

A. -8
B. 2
C. 3
D. 4

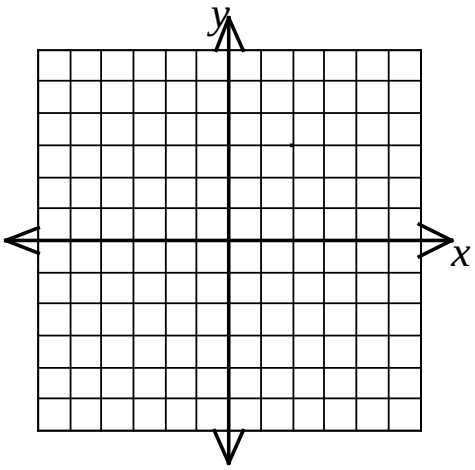


13. What is the center and radius of a circle with an equation of $(x+9)^2+(y-2)^2=49$?

A. $C(-9,2)$ $r=7$
B. $C(9,2)$ $r=7$
C. $C(2,9)$ $r=7$
D. $C(-9,2)$ $r=49$

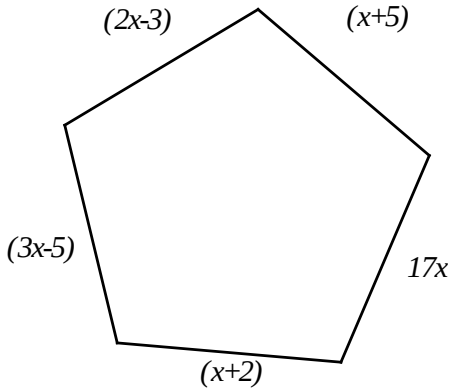
14. What is the equation for the graph of the circle?

A. $x^2+y^2=16$
B. $(x+2)^2+(y-3)^2=16$
C. $(x-2)^2+(y+3)^2=16$
D. $(x-2)^2+(y-3)^2=16$



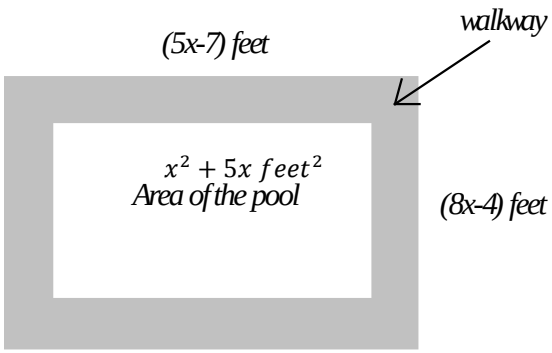
15. What is the perimeter of the figure in terms of x ?

A. $24x-1$
B. $1-24x$
C. $24x^2-1$
D. $102x-150$



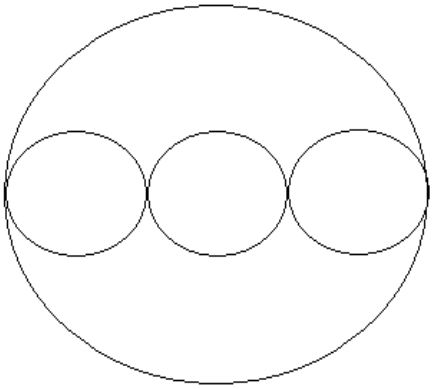
16. What is the area of the walkway that surrounds the pool in terms of x ?

A. $(40x^2 - 76x + 28)ft^2$
B. $(40x^2 - 71x + 28)ft^2$
C. $(39x^2 - 5x + 28)ft^2$
D. $(39x^2 - 81x + 28)ft^2$



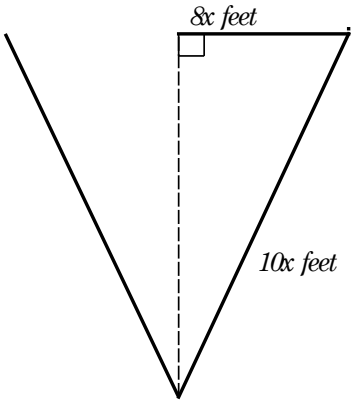
17. What is the area of one small circle?
- Each small circle is congruent.
- Each circle is tangent to the others.
- The diameter of the large circle is $d = 24x + 24\ in$

A. $(16x^2 + 32x + 16)\pi\ in^2$
B. $(16x^2 + 16x + 16)\pi\ in^2$
C. $(16x^2 + 16)\pi\ in^2$
D. $(4x + 4)\pi\ in^2$



18. What is the total surface area of the cone in terms of x?

A. $60x^2\pi\ ft^2$
B. $80x^2\pi\ ft^2$
C. $128x^2\pi\ ft^2$
D. $144x^2\pi\ ft^2$



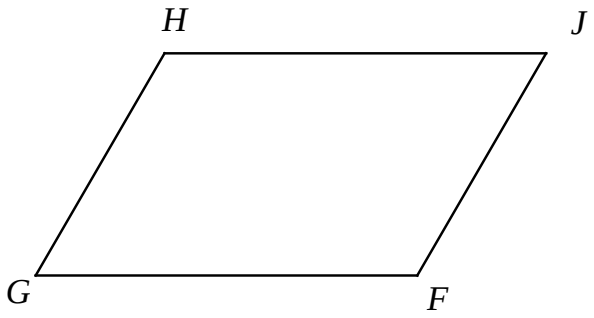
19. Given $m\angle A = (3x + 6)°$ and $m\angle B = (2x + 14)°$, what is the $m\angle C$ in rhombus $ABCD$?

A. $m\angle C = 102°$
B. $m\angle C = 32°$
C. $m\angle C = 16°$
D. $m\angle C = 8°$

20. What is the measure of HJ in Parallelogram $FGHJ$?

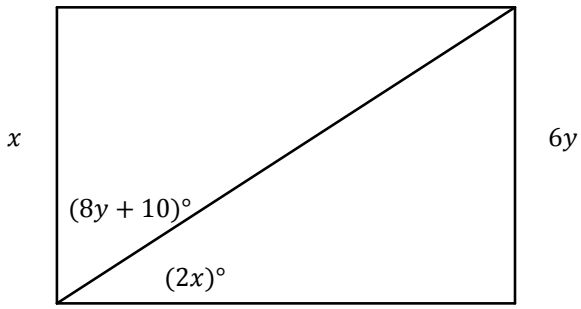
- $FG = x + 7$
- $GH = 5x + 3$
- $m\angle G = 46°$
- $m\angle J = (3x + 10)°$

A. 19
B. 12
C. 8
D. 1



21. What is the value of x in the rectangle?

A. 42
B. 24
C. 8
D. 4



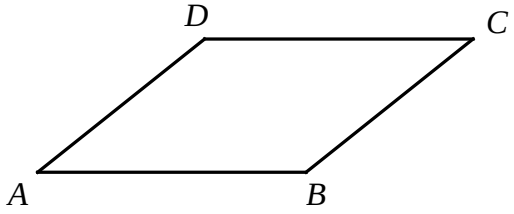
22. Which of the following is <u>not</u> always true of Parallelogram ?

A. $\overline{AB} \cong \overline{BC}, \overline{DC} \cong \overline{BC}$

B. $\overline{AB} \cong \overline{DC}, \overline{BC} \cong \overline{AD}$

C. $m\angle A + m\angle B = 180°$

D. $AB + BC = AD + DC$

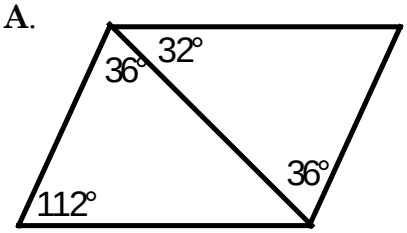


23. Which quadrilateral has line symmetry and no rotational symmetry?

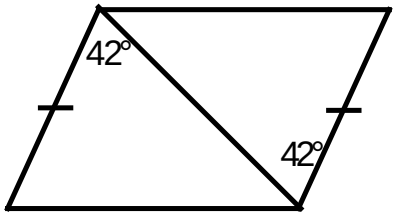
A. Rectangle
B. Square
C. Isosceles Trapezoid
D. Rhombus

24. Which quadrilateral is <u>not</u> a parallelogram?

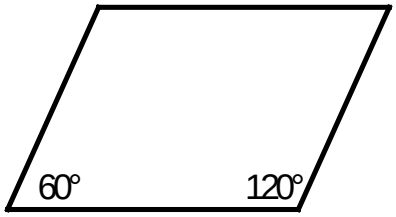
A.



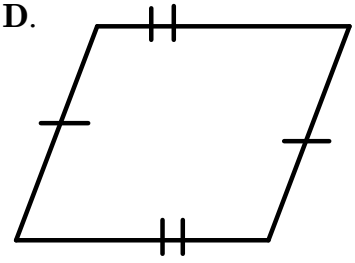
C.



B.

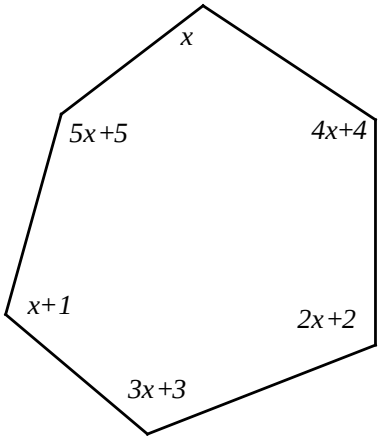


D.



25. What is the value of x to the nearest whole degree?

A. 15°
B. 44°
C. 47°
D. no solution



26. What is the measure of each exterior angle of a regular pentagon?

A. 360°
B. 72°
C. 36°
D. 5°

27. What is the measure of each interior angle of a regular 15-gon?

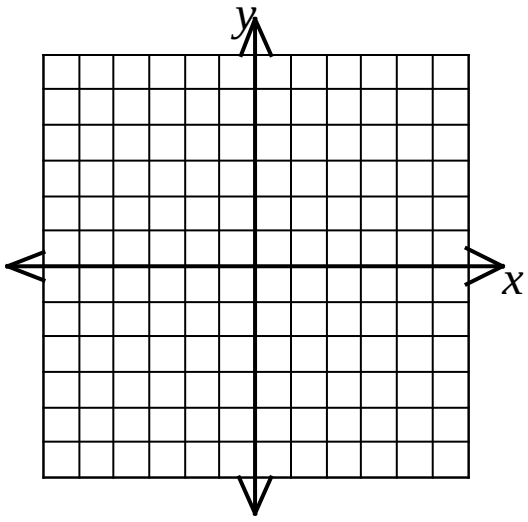
A. 12°
B. 24°
C. 78°
D. 156°

28. What kind of regular polygon has an exterior angle of 45° ?

A. pentagon
B. hexagon
C. octagon
D. decagon

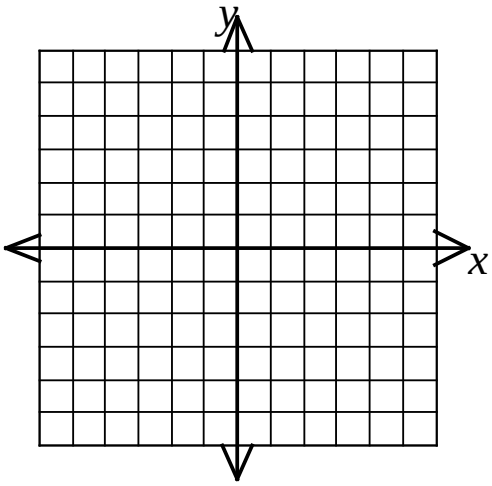
29. Classify the shape with vertices located at $(-3,\ 3), (2,\ 3), (-5, -2), (0, -2)$.

A. Rhombus
B. Rectangle
C. Square
D. Parallelogram



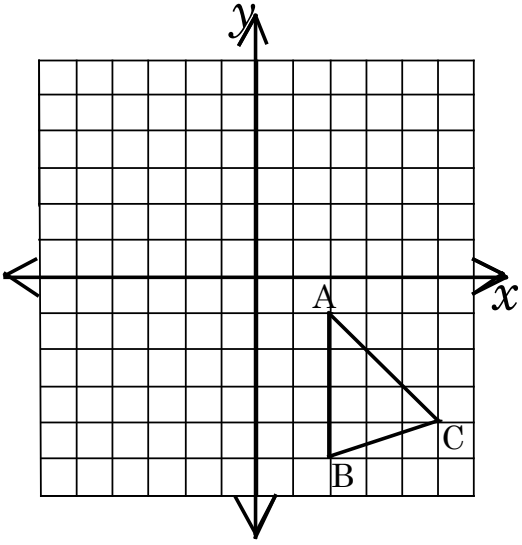
30. Given points $B(-3,\ 3)$, $C(3,\ 4)$, and $D(4,-2)$. Which of the following points must be point A in order for the quadrilateral ABCD to be a parallelogram ?

A. $A(-2,-1)$
B. $A(-1,-2)$
C. $A(-2,-3)$
D. $A(-3,-2)$



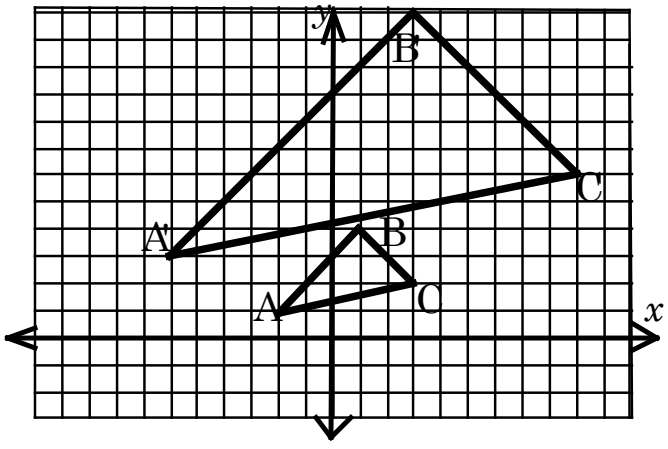
31. Reflect ΔABC over the y-axis and rotate 180° about the origin.
What are the new coordinates of point C after the transformations?

A. $C"(-5,-4)$
B. $C"(5,\ 4)$
C. $C"(-4,\ 5)$
D. $C"(4,\ 5)$



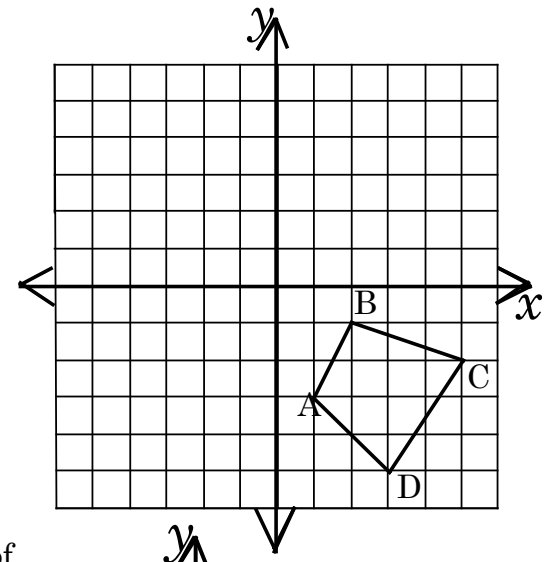
32. What is the scale factor for the dilation of ΔABC to image $\Delta A'B'C'$?

A. -2
B. 1
C. 2
D. 3



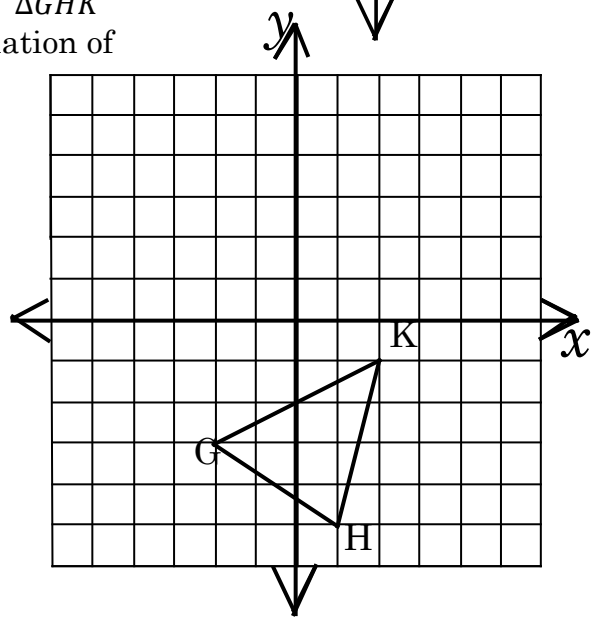
33. What are the coordinates for the image of quadrilateral $ABCD$ after the translation of $(x, y) \rightarrow (x + 7, y - 2)$?

A. $A'(8, -5),\ B'(2, -1), C'(12, -4), D(10, -7)$
B. $A'(-6, -1),\ B'(-5,\ 1), C'(-2,\ 0), D(-4, -3)$
C. $A'(-6, -5),\ B'(2, -1), C'(12, -4), D(10, -7)$
D. $A'(8, -5),\ B'(9, -3), C'(12, -4), D(10, -7)$



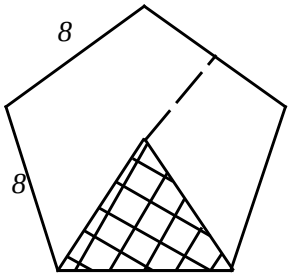
34. What are the coordinates for the image of ΔGHK after a rotation 90° clockwise and a translation of $(x, y) \rightarrow (x + 3,\ y + 2)$?

A. $G"(-3, 2),\ H"(-5, -1),\ K"(-1, -2)$
B. $G"(0,\ 4),\ H"(-2,\ 1),\ K"(2,\ 0)$
C. $G"(1,\ 2),\ H"(5,\ 1),\ K"(2,\ -1)$
D. $G"(6,\ 0),\ H"(8,\ 3),\ K"(4,\ 5)$

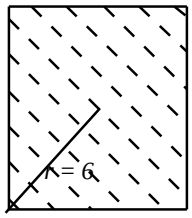


35. Given the height of the triangle and the apothem of the regular pentagon is approximately 5.51 . What is the probability that the point lies in the shaded section of the triangle, if a point is chosen at random from inside the regular pentagon?

A. $\frac{1}{5}$
B. $\frac{1}{4}$
C. $\frac{1}{3}$
D. $\frac{1}{2}$



36. Given the square inside the circle with radius 6. What is the probability that the point lies inside the square, if a point is chosen at random inside the circle?



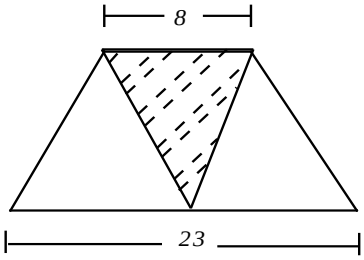
A. $\frac{72-36\pi}{\pi}$

B. $\frac{2-\pi}{\pi}$

C. $\frac{\sqrt{2}}{\pi}$

D. $\frac{2}{\pi}$

37. Given the height of the triangle is 10. What is the probability that the point lies inside the triangle, if a point is chosen at random inside the trapezoid?



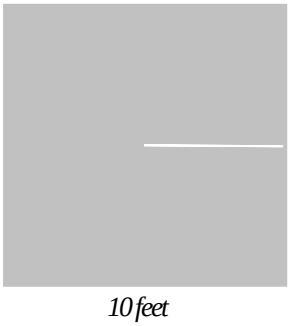
A. $\frac{8}{23}$

B. $\frac{8}{31}$

C. $\frac{18}{23}$

D. $\frac{10}{23}$

38. Given the circle is in the square with the sides of the square tangent to the circle. What is the probability that the point lies outside the circle, if a point is chosen at random from the square?



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

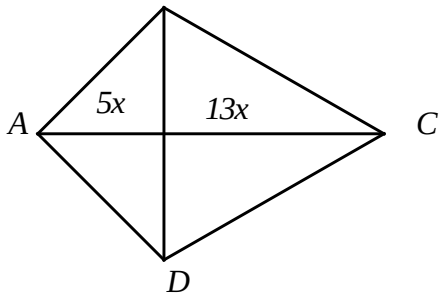
B. $\frac{2-\pi}{\pi}$

C. $1-\frac{\pi}{4}$

D. $1-\frac{\pi}{10}$

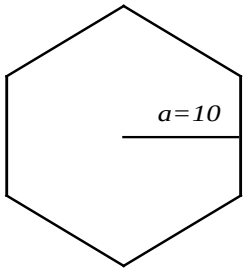
39. What is the length of diagonal $\overline{DB}$ in the kite ABCD with area $162x^2$?
Formula: $A = \frac{1}{2}d_1d_2$ $(where\ d_1\ and\ d_2\ are\ diagonals)$

A. $18x$
B. $13x$
C. $10x$
D. $5x$



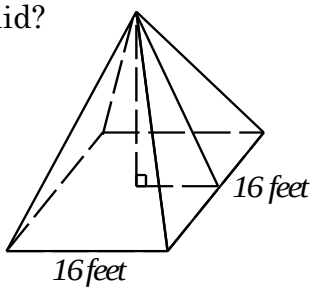
40. What is the area of a regular hexagon with an apothem of 10 cm and a side length of $\frac{20\sqrt{3}}{3}cm$?

A. $200\sqrt{3}\ cm^2$
B. $300\sqrt{3}\ cm^2$
C. $600\sqrt{3}\ cm^2$
D. $600\ cm^2$



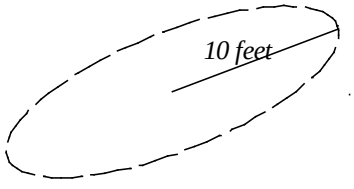
41. What is the total surface area of the square pyramid?
- The height of the pyramid is 6 feet

A. $1536\ ft^2$
B. $896\ ft^2$
C. $640\ ft^2$
D. $576\ ft^2$

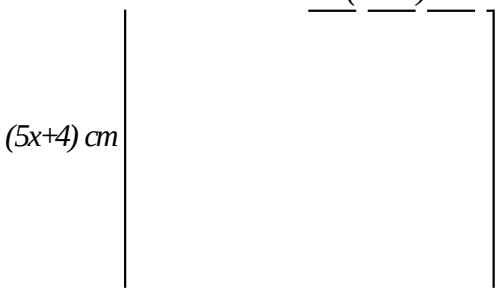


42. What is the total surface area of the sphere?
- The radius of the sphere is 10 $feet$

A. $400\pi\ ft^2$
B. $100\pi\ ft^2$
C. $40\pi\ ft^2$
D. $\frac{400}{3}\pi\ ft^2$



43. What is the volume of the cylinder in terms of x ?



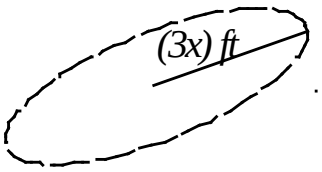
A. $(8x + 3)\pi\ cm^2$
B. $(15x^2 + 7x - 4)\pi\ cm^2$
C. $(45x^3 + 6x^2 - 19x + 4)\pi\ cm^3$
D. $\frac{1}{3}(45x^3 + 6x^2 - 19x + 4)\pi\ cm^3$

44. What is the volume of a pyramid that has a square base with side length $(3x + 5)ft$ and a height of $(6x + 6)ft$?

A. $(9x + 11)ft^2$
B. $(18x^2 + 45x + 30)ft^2$
C. $(18x^3 + 78x^2 + 110x + 50)ft^3$
D. $(54x^3 + 234x^2 + 330x + 150)ft^3$

45. What is the volume of the sphere in terms of x ?

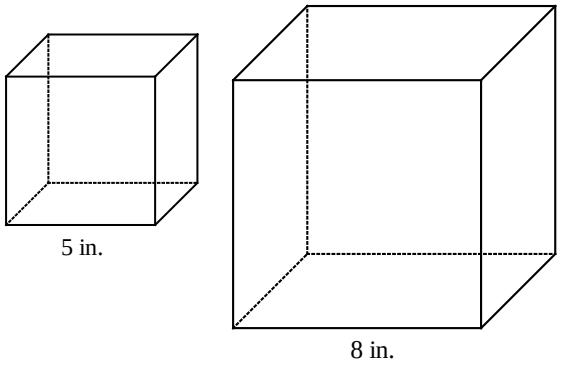
A. $4\pi x^3\ ft^3$
B. $12\pi x^3\ ft^3$
C. $27\pi x^3\ ft^3$
D. $36\pi x^3\ ft^3$



46. What is the ratio of the volumes of the two cubes?

- The two cubes have edges of lengths 5 inches and 8 inches.

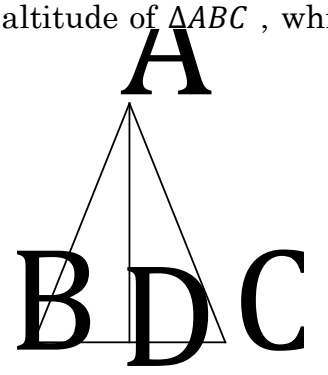
A. 5: 8
B. 25: 64
C. 125: 512
D. 625: 4096



47. Given $\overline{AD}$ is an angle bisector of equilateral ΔABC , which of the following must be true?

A. $\angle B = \angle C$
B. $AB = DC$
C. $AD = BC$
D. $\angle ABC = \angle ADC$

48. Given ΔABC is isosceles with $AB = AC$ and $\overline{AD}$ is an altitude of ΔABC , which of the following must be true?



A. $CD = AC$
B. $\angle ABC = \angle ADC$
C. $BD = DC$
D. $\angle C \cong \angle ADC$

49. Given $\overline{DE}$ is a midsegment of ΔABC, D is between A and B, and E is between B and C , which of the following is <u>not</u> necessarily true?

A. $\overline{DE}$ is parallel to $\overline{AC}$
B. $DE = \frac{1}{2}(AC)$
C. $\angle BAC \cong \angle BDE$
D. $\angle C \cong \angle A$

50. In triangle ABC, E is the midpoint of $\overline{AB}$, F is the midpoint of $\overline{BC}$ and D is the midpoint of $\overline{AC}$.
What is the perimeter of ΔDFC?

- $AB = 12x + 8$
- $DE = 8x + 4$
- $AD = 10$

A. $30x + 12$
B. $14x + 18$
C. $28x + 36$
D. $14x$

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1.	B	21.	B	41.	D
2.	D	22.	A	42.	A
3.	B	23.	C	43.	C
4.	A	24.	B	44.	C
5.	C	25.	B	45.	D
6.	C	26.	B	46.	C
7.	C	27.	D	47.	A
8.	A	28.	C	48.	C
9.	C	29.	D	49.	D
10.	C	30.	C	50.	B
11.	A	31.	B		
12.	C	32.	D		
13.	A	33.	D		
14.	B	34.	B		
15.	A	35.	A		
16.	D	36.	D		
17.	A	37.	B		
18.	D	38.	C		
19.	A	39.	A		
20.	A	40.	A		