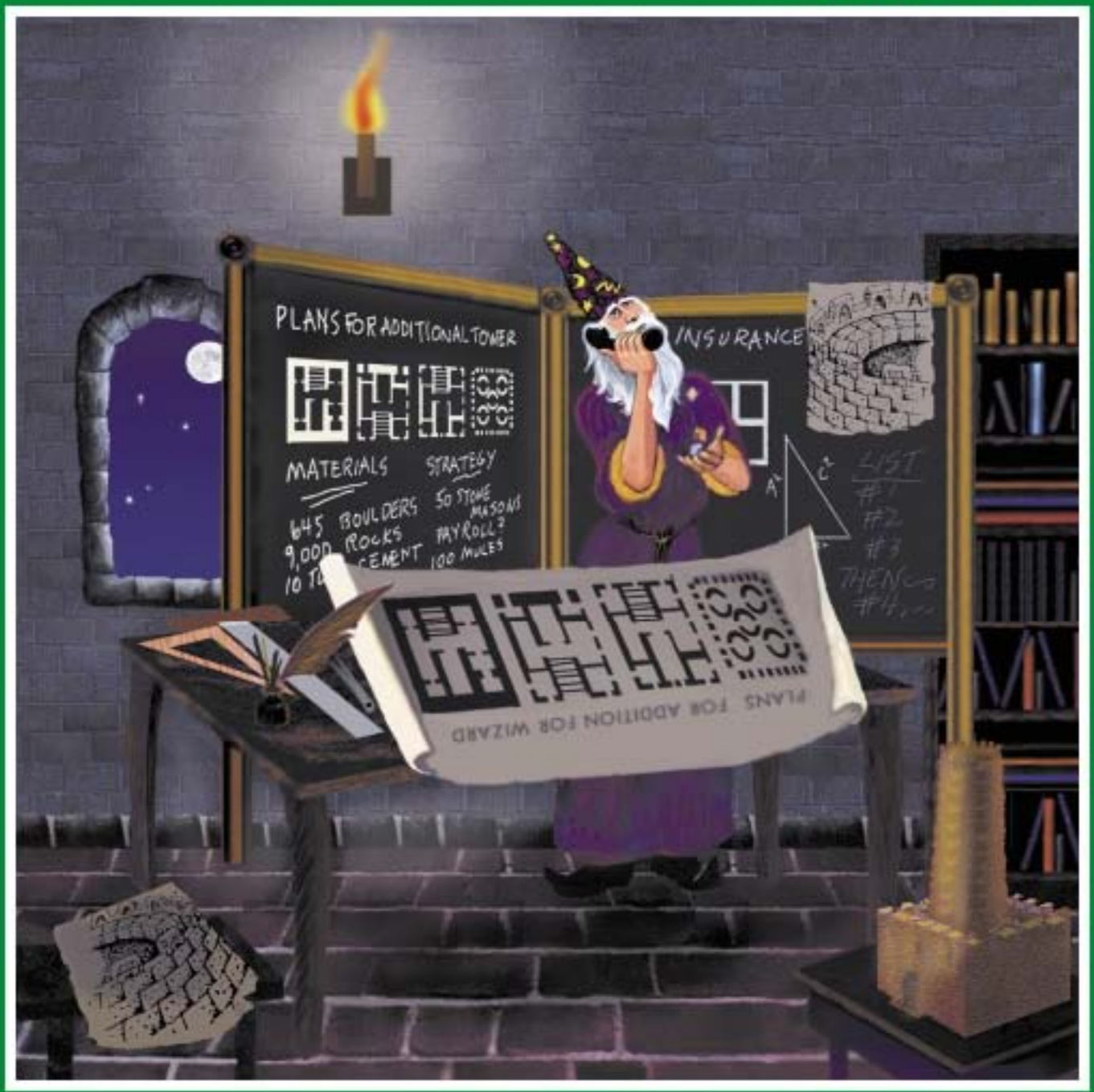
Wizard Test Maker

MATH A



QUESTION CATALOGUE

eduware

Integrated Math A

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6807. Which statement is the converse to "If it is my birthday, then I will get presents"?

(1) If I will get presents, then it is my birthday.
(2) If it is not my birthday, then I will not get presents.
(3) If I will not get presents, then it is not my birthday.
(4) If it is my birthday, then I will not get presents.

6805. Which statement is the inverse to "If it is Tuesday, then I have soccer practice"?

(1) If I have soccer practice, then it is Tuesday.
(2) If it is not Tuesday, then I do not have soccer practice.
(3) If I do not have soccer practice, then it is not Tuesday.
(4) If it is Tuesday, then I do not have soccer practice.

6400. What is the inverse of the statement “If it is spring, then flowers bloom”?

(1) If it is not spring, then flowers do not bloom.
(2) If it is not spring, then flowers bloom.
(3) If flowers do not bloom, then it is not spring.
(4) If flowers bloom, then it is spring.

6226. What is the inverse of the statement "If two parallel lines are cut by a transversal, the corresponding angles are equal"?

(1) If the corresponding angles of two lines cut by a transversal are equal, the lines are parallel.
(2) If two nonparallel lines are cut by a transversal, the corresponding angles are not equal.
(3) If the corresponding angles of two lines cut by a transversal are not equal, the lines are not parallel.
(4) Corresponding angles of parallel lines are equal.

6193. Which statement is the converse of "If a quadrilateral is a square, then the diagonals are perpendicular"?

(1) If the diagonals of a quadrilateral are not perpendicular, then it is not a square.
(2) If the diagonals of a quadrilateral are perpendicular, then it is a square.
(3) If a quadrilateral is not a square, then the diagonals are not perpendicular.
(4) If a quadrilateral is a square, then the diagonals are not perpendicular.

6186. Which statement is the negation of "I drive and I do not speed"?

(1) I drive and I speed.
(2) I do not drive or I speed.
(3) I do not drive and I do not speed.
(4) I do not drive or I do not speed.

6016. In symbolic form, write the inverse of $q \rightarrow \sim p$.

$\boldsymbol{\sim q \rightarrow p}$

6150. What is the converse of the statement “If two triangles are congruent, then they are similar”?

(1) If two triangles are similar, then they are congruent.
(2) If two triangles are not similar, then they are not congruent.
(3) If two triangles are congruent, then they are not similar.
(4) If two triangles are not congruent, then they are not similar.

4775. Which statement is the converse of "If quadrilateral *ABCD* is a trapezoid, then it has only two opposite sides that are parallel"?

(1) If quadrilateral *ABCD* is not a trapezoid, then it does not have two and only two opposite sides that are parallel.
(2) If quadrilateral *ABCD* has only two opposite sides that are parallel, then it is a trapezoid.
(3) If quadrilateral *ABCD* is a trapezoid, then it does not have two and only two opposite sides that are parallel.
(4) If quadrilateral *ABCD* does not have two and only two opposite sides that are parallel, then it is not a trapezoid.

4708. Which statement is the inverse of "If a quadrilateral is a square, then it has four right angles"?

(1) If a quadrilateral has four right angles, then it is a square.
(2) If a quadrilateral is not a square, then it has four right angles.
(3) If a quadrilateral does not have four right angles, then it is not a square.
(4) If a quadrilateral is not a square, then it does not have four right angles.

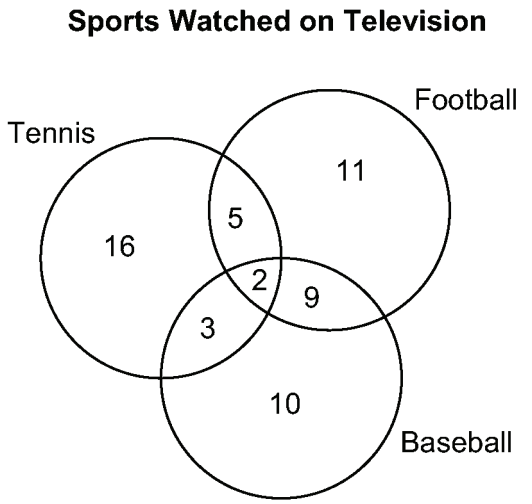
4637. Which statement is the converse of "If two sides of a triangle are congruent, then the triangle is isosceles"?

(1) If a triangle is not isosceles, then two sides of the triangle are not congruent.
(2) If two sides of a triangle are not congruent, then the triangle is not isosceles.
(3) If a triangle is isosceles, then two sides of the triangle are congruent.
(4) If two sides of a triangle are not congruent, then the triangle is isosceles.

4571. Which is the converse of the statement "If today is Presidents' Day, then there is no school"?

(1) If there is school, then today is not Presidents' Day.
(2) If there is no school, then today is Presidents' Day.
(3) If today is Presidents' Day, then there is school.
(4) If today is not Presidents' Day, then there is school.

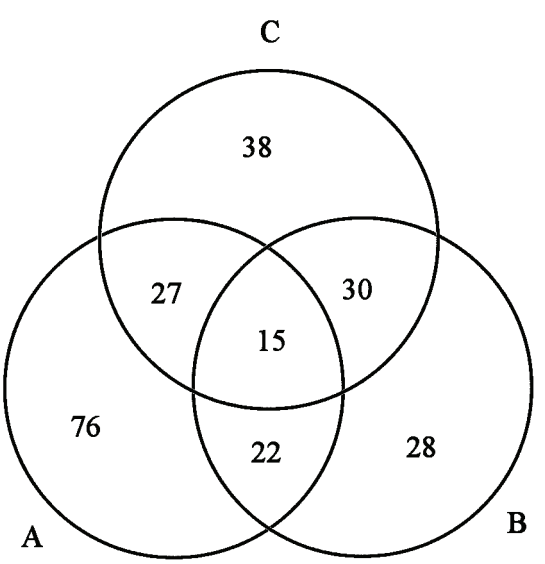
6492. The accompanying diagram shows the results of a survey asking which sports the members of the Key Club watch on television.



Which statement or statements are true?
I The most watched sport is tennis.
II The least watched sport is baseball.
III More Key Club members watch tennis than football.

(1) I, only
(3) I and II, only
(2) II, only
(4) II and III, only

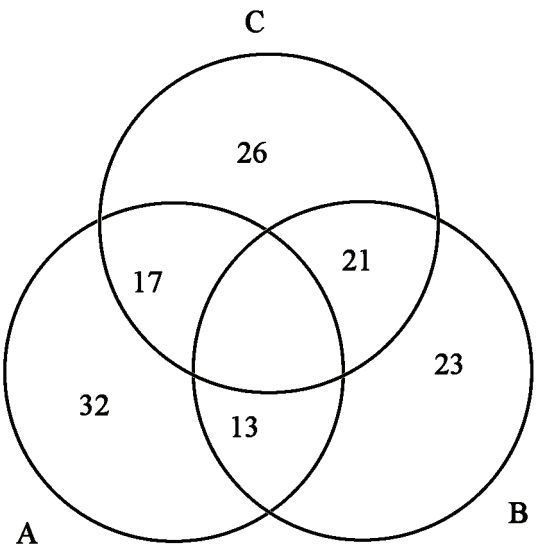
5879. The accompanying Venn diagram shows the number of students taking science. All students in circle A are taking biology. All in circle B are taking physics. All in circle C are taking chemistry.



If there are 250 students in the school, what percent are not taking science?

6%

5855. The Venn diagram below shows what type of pets students own. All students in circle A own dogs. All in circle B own cats. All in circle C own birds. If 12 percent of the students own all three pets, and no student does not have a pet, how many own all three pets?



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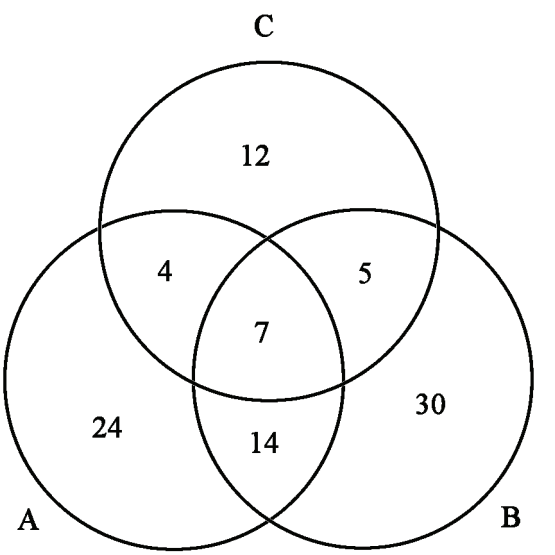
5854. The Venn diagram below shows the students' fruit preferences. All students in circle A like apples. All in circle B like oranges. All in circle C like bananas. What percentage of students like exactly 2 types of fruit, *to the nearest percent*?



24%

7600. The formula for converting temperatures in degrees Fahrenheit is $F = \frac{9}{5}C + 32$. If the temperature is 20ºC, what is the temperature in degrees Fahrenheit?

(1) 68 (3) 33.8
(2) 43.1 (4) 4

7583. Which property is illustrated by the equation $6 + (4 + x) = 6 + (x + 4)$?

(1) associative property of addition
(2) associative property of multiplication
(3) distributive property
(4) commutative property of addition

7373. What is the first step in simplifying the expression $(2 – 3 \times 4 + 5)^2$?

(1) square 5 (3) subtract 3 from 2
(2) add 4 and 5 **(4) multiply 3 by 4**

7291. The equation $A = \frac{1}{2}(12)(3 + 7)$ is used to find the area of a trapezoid. Which calculation would *not* result in the correct area?

(1) $\frac{12(3 + 7)}{2}$
(2) $6(3 + 7)$
(3) $0.5(12)(10)$
(4) $\frac{12}{2} \times \frac{10}{2}$

6878. The equation $y = 1 + 2(x – 1)x^2$ represents the decrease in temperature, y degrees celsius, that a liquid will lose after x hours. In 2.5 hours, by how many degrees Celsius will the temperature decrease?

(1) .25 (3) 26
(2) 19.75 (4) 31.25

6715. Which inequality is true if $x = 1.28 + .14$, $y = (-2)^3$, and $z = \frac{3.48}{.03}$?

(1) y > x > z (3) z < x > y
(2) y < x < z (4) y > x < z

6506. The expression $15 – 3[2 + 6(–3)]$ simplifies to

(1) –45 **(3) 63**
(2) –33 (4) 192

6386. Find the value of $4ab^2$ if $a = 2$ and $b = 3$.

72

6295. Which statement is the converse of "If it is a 300 ZX, then it is a car"?

(1) If it is not a 300 ZX, then it is not a car.
(2) If it is not a car, then it is not a 300 ZX.
(3) If it is a car, then it is a 300 ZX.
(4) If it is a car, then it is not a 300 ZX.

5270. Evaluate the expression following correct order of operations, where $x = 4$, $y = -\frac{1}{2}$, and $z = 3$.
$(x \times z) \div y + (-\frac{1}{3}) \times z^2$

(1) $\frac{24}{7}$
(2) $\frac{-24}{7}$
(3) –27
(4) –219

5269. Evaluate the expression following correct order of operations, where $x = 3$, $y = 8$, and $z = –4$.
$x + y^2 \times z – z \div 2$

(1) $\frac{3}{2}$ (3) –132
(2) 3 **(4) –251**

5268. In simplifying $5 + 6^2 \div 2$, which of the following correctly explains how to follow the order of operations?

(1) After evaluating 6^2, divide by 2 and then add 5 because division is evaluated before addition.
(2) After evaluating 6^2, add 5 and then divide by 2 because addition is evaluated before division.
(3) After evaluating 5 + 6, square it and then divide by 2 because addition is evaluated before both exponents and division.
(4) The process of simplifying the expression cannot be determined without parentheses.

2562. Find the value of $3x^2y$ when $x = 2$ and $y = –1$

–12

2533. If $a = 2$ and $b = –1$, the expression $3ab^2$ is equal to

(1) 6 (3) 36
(2) 12 (4) –12

2480. In the formula $z = xy^2$, find z if $x = 4$ and $y = –3$.

36

2442. If $a = 1$ and $b = –2$, find the value of $(a – b)^2$.

9

2411. If $a = –3$ and $b = 4$, then the value of $–5a^2b$ is

(1) 180 (3) –120
(2) 120 **(4) –180**

2359. If $a = –2$ and $b = –3$, what is the value of $3a^2b$?

–36

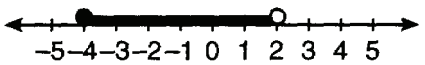
2324. Find the value of $4x^2 – 2y$ when $x = –2$ and $y = 1$.

18

2237. Find the value of $5xy^2$ if $x = –2$ and $y = –3$.

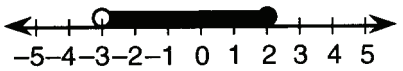
–90

2837. Which inequality is represented in the graph below?



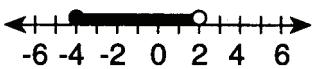
(1) $-4 < x < 2$ (3) $-4 < x \leq 2$
(2) $-4 \leq x < 2$ (4) $-4 \leq x \leq 2$

2454. Which inequality is represented by the graph below?



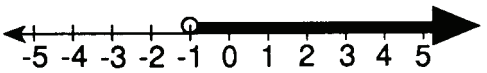
(1) $-3 < x < 2$ **(3) $-3 < x \leq 2$**
(2) $-3 \leq x < 2$ (4) $-3 \leq x \leq 2$

2162. Which inequality is represented in the accompanying graph?



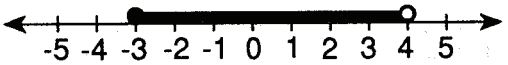
(1) $-4 \leq x \leq 2$ (3) $-4 < x \leq 2$
(2) $-4 < x < 2$ **(4) $-4 \leq x < 2$**

2035. Which inequality is represented by the graph below?



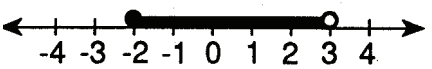
(1) $x > -1$ (3) $x \geq -1$
(2) $x < -1$ (4) $x \leq -1$

1996. Which inequality is represented by the graph below?



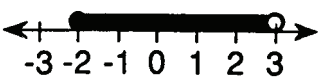
(1) $-3 < x \leq 4$ (3) $-3 \leq x \leq 4$
(2) $-3 < x < 4$ **(4) $-3 \leq x < 4$**

1955. Which inequality is represented in the graph below?



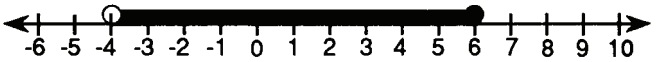
(1) $-2 < x < 3$ (3) $-2 \leq x \leq 3$
(2) $-2 < x \leq 3$ (4) $-2 < x \leq -3$

1784. Which inequality is represented by the graph below?



(1) $-2 \leq x < 3$ (3) $-2 < x < 3$
(2) $-2 \leq x \leq 3$ (4) $-2 < x \leq 3$

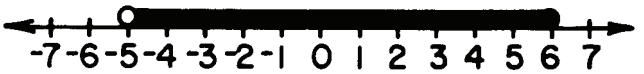
1531.



Which inequality is represented by the graph below?

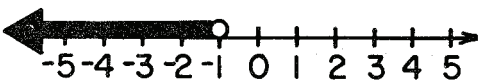
(1) $-4 \leq x \leq 6$ (3) $-4 \leq x < 6$
(2) $-4 < x < 6$ **(4) $-4 < x \leq 6$**

1491. Which inequality is represented by the graph below?



(1) $-5 < x < 6$ (3) $-5 \leq x < 6$
(2) $-5 \leq x \leq 6$ **(4) $-5 < x \leq 6$**

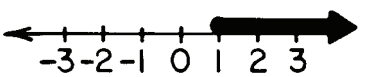
1323. Which inequality is represented by the graph below?



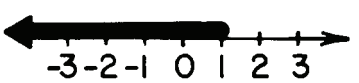
(1) $x > -1$ **(3) $x < -1$**
(2) $x \leq -1$ (4) $x \geq -1$

1239. Which graph represents the solution set of $2x + 1 \geq 3$?

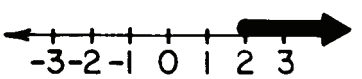
(1)



(2)

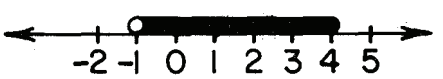


(3)



(4)

1196. Which inequality is represented by the accompanying graph?

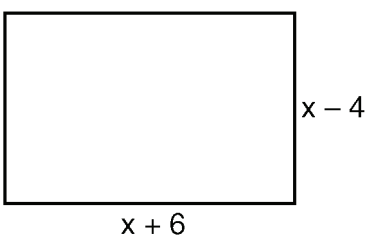


(1) $-1 \leq x \leq 4$ **(3) $-1 < x \leq 4$**
(2) $-1 < x < 4$ (4) $-1 \leq x < 4$

7183. Sean knows the length of the base, *b*, and the area, *A*, of a triangular window in his bedroom. Which formula could he use to find the height, *h*, of this window?

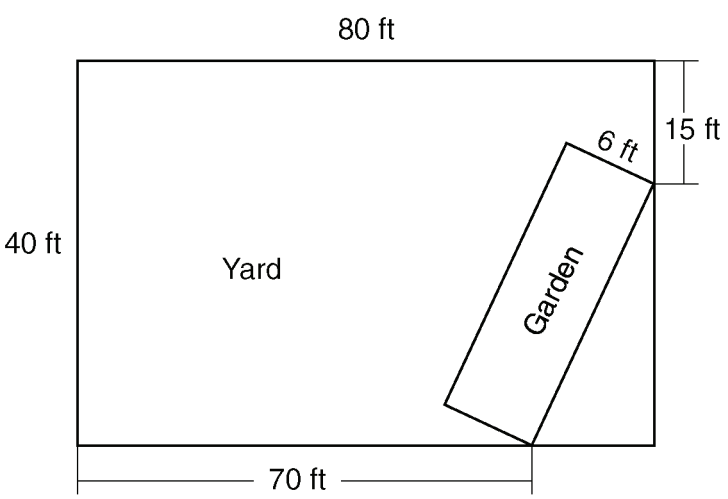
(1) $h = 2A - b$
(2) $h = \frac{A}{2b}$
(3) $h = (2A)(b)$
(4) $h = \frac{2A}{b}$

7125. Express both the perimeter and the area of the rectangle shown in the accompanying diagram as polynomials in simplest form.



Perimeter = $4x + 4$ or $4(x + 1)$ and
area = $x^2 + 2x - 24$, and appropriate work is shown.

7044. A rectangular garden is going to be planted in a person's rectangular backyard, as shown in the accompanying diagram. Some dimensions of the backyard and the width of the garden are given. Find the area of the garden to the *nearest square foot.*



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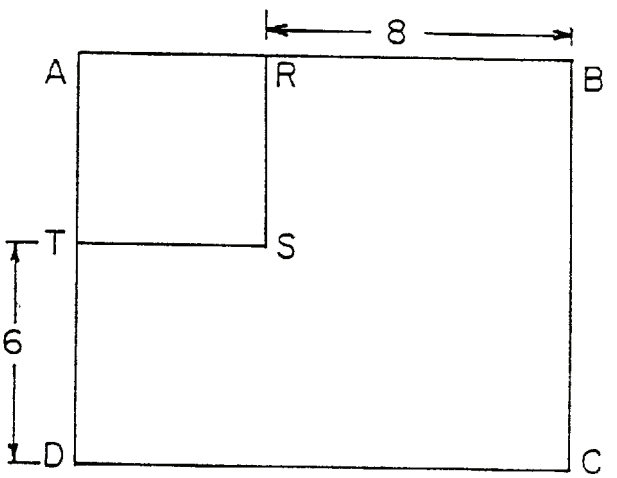
7006. Tina's preschool has a set of cardboard building blocks, each of which measures 9 inches by 9 inches by 4 inches. How many of these blocks will Tina need to build a wall 4 inches thick, 3 feet high, and 12 feet long?

64, and appropriate work is shown, such as calculating $\frac{(36 \times 144)}{(9 \times 9)}$ or drawing a labeled diagram.

7001. The lengths of the sides of two similar rectangular billboards are in the ratio 5:4. If 250 square feet of material is needed to cover the larger billboard, how much material, in square feet, is needed to cover the smaller billboard?

$\frac{25}{16} = \frac{250}{x}$,x=160

6912. Ronda would like to section off a square area, *ARST*, from her rectangular pool, *ABCD*, so that she may turn the square into a hot tub. If the area of *ABCD* is 99 square feet, what will be the area of her new hot tub, *ARST*?

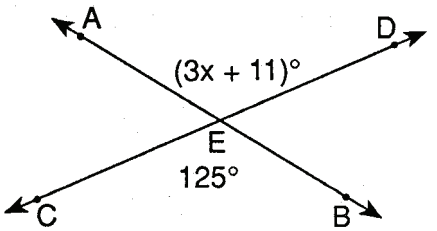


(1) 3 square feet
(2) 9 square feet
(3) 12 square feet
(4) 90 square feet

6907. The diagram below represents a plot of land that Ronald's parents want to buy. The land is in the shape of a parallelogram. The seller of the plot of land insists that Ronald's parents are purchasing 24 square yards of land. However, Ronald believes that this calculation is wrong.
a) Explain why the area of the plot of land is not 24 square yards.
b) Find the true area of the plot of land.

The plot of land is not 24 square yards because the seller wrongfully multiplied the longer side of the parallelogram with the shorter side. The true way to find the area of a parallelogram is to multiply the base by the height. The true area is 16 square yards.

1890. In the accompanying diagram, $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at E. If m$\angle AED = 3x + 11$ and m$\angle CEB = 125$, find x.



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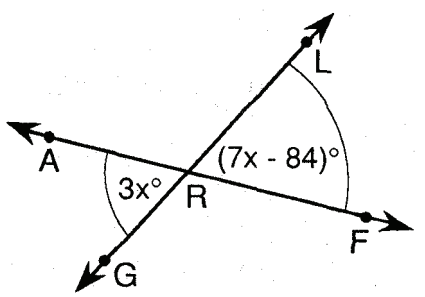
1813. In the accompanying diagram, $\overleftrightarrow{AF}$ and $\overleftrightarrow{LG}$ intersect at R, m$\angle LRF = 7x - 84$ and m$\angle ARG = 3x$. What is the value of x?



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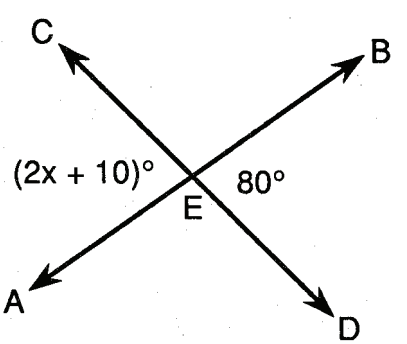
1678. In the accompanying diagram, lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at point E. If m$\angle CEA = 2x + 10$ and m$\angle BED = 80$, what is the value of x?



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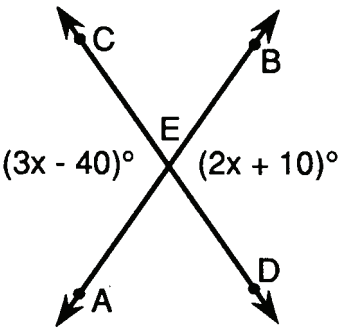
1514. In the accompanying diagram, $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at E. If m$\angle AEC = 3x - 40$ and m$\angle BED = 2x + 10$, find the value of x.



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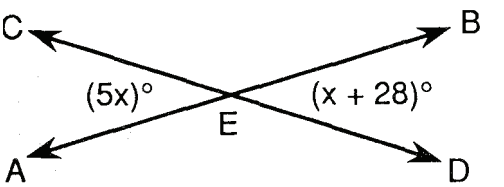
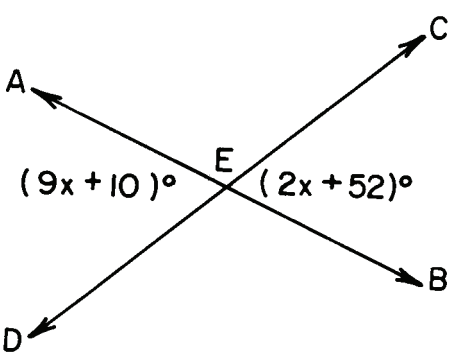
1428. In the accompanying diagram, $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at point E. If m$\angle AEC = 5x$ and m$\angle BED = x + 28$, find the value of x.



7

1384. In the accompanying diagram, $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at E. If m$\angle AED = 9x + 10$ and m$\angle BEC = 2x + 52$, find the value of x.

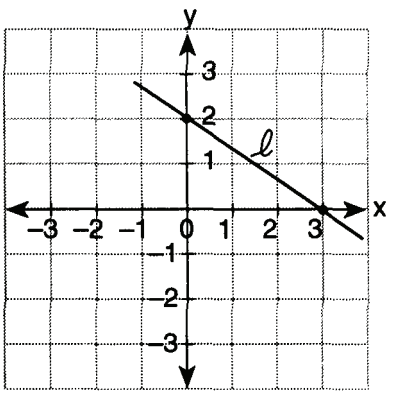


6

6075. What is the slope of the line whose equation is $y - 3x = 1$?

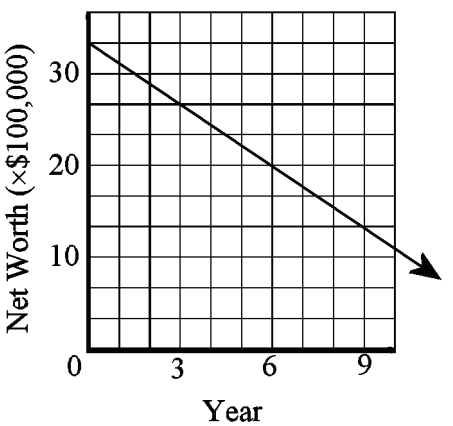
(1) 1
(2) –3
(3) 3
(4) $\frac{1}{3}$

5983. What is the slope of line ℓ in the accompanying diagram?



(1) $-\frac{3}{2}$ (3) $\frac{2}{3}$
(2) $-\frac{2}{3}$ (4) $\frac{3}{2}$

5878. The net worth of a company over a time period is shown on the accompanying graph.



If the trend continues, in what year will the company go bankrupt (have no net worth)?

15

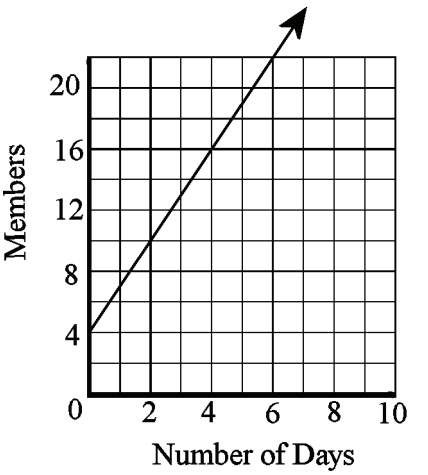
5781. Can a line contain the points (–10, –7), (0, –2), and (10, 2)? Explain.

No

282. The y-intercept of the graph of $y = \frac{2}{3}x + 2\frac{2}{3}$ is

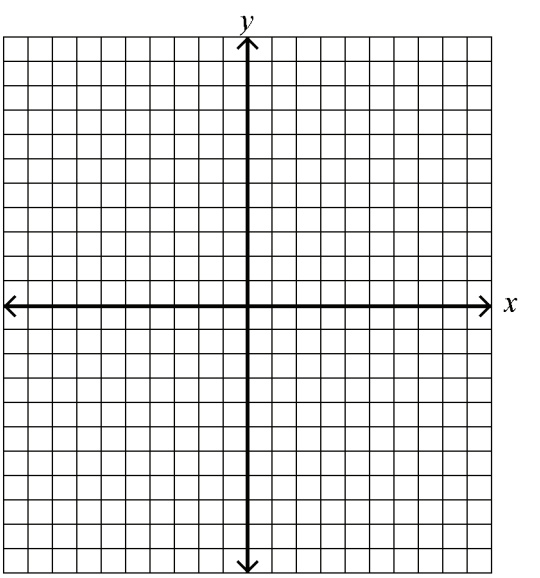
(1) $\frac{3}{2}$ (3) $\frac{2}{3}$
(2) 8 **(4) $2\frac{2}{3}$**

5853. The graph below shows the number of members the Math club had on each day after it was created. Assuming this trend continues, on which day will they reach their goal of 52 members?



16

5811. A straight line with slope –2 contains the points $(-a, 2)$ and (5, 5). Find the value of a. [Use of the accompanying grid is optional.]



–8

5780. Line k contains the points (–4, –3) and (0, 0).

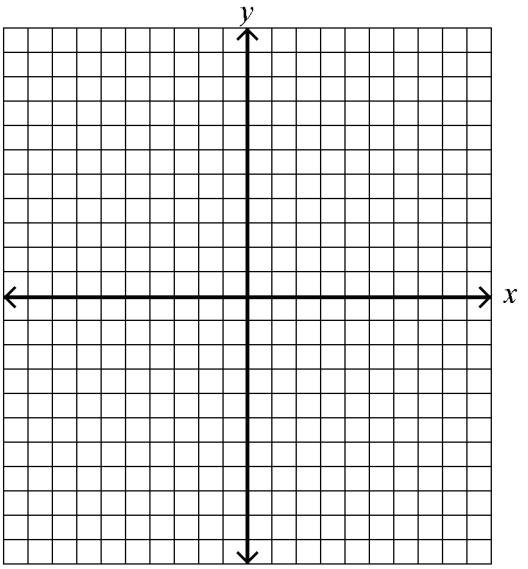
Show that the point (8, 6) does or does not lie on line k.

The point (8, 6) does lie on line k.

5686. Rewrite $6x - 2 = 3y + 13$ in $y = mx + b$ form.

(1) $y = 2x - 5$ (3) $y = 2x - 15$
(2) $y = 6x - 15$ (4) $y = 2x - 3\frac{2}{3}$

5800. The midpoint M of line segment $\overline{AB}$ has coordinates (–5, 3). The coordinates of point A is (5, –3). Find the coordinates of point B. [*The use of the accompanying grid is optional.*]



(0, 0)

4173. What is the midpoint of the line segment connecting the points (–2,4) and (5,–2)?

(1) $\left(\frac{3}{2},1\right)$ (3) $\left(\frac{7}{2},1\right)$

(2) $\left(3,\frac{3}{2}\right)$ (4) $\left(\frac{3}{2},2\right)$

4097. The midpoint of $\overline{AB}$ is M. If the coordinates of A are (2,–6) and the coordinates of M are (5,–1), find the coordinates of B.

(8,4)

3998. What is the midpoint of the line segment that connects the points (1,2) and (6,7)?

$\left(\frac{7}{2},\frac{9}{2}\right)$

3941. A circle has center (3,5) and diameter $\overline{AB}$. The coordinates of A are (–4,6). What are the coordinates of B?

(1) $(-\frac{1}{2},4)$ (3) (10,1)

(2) (10,4) (4) $(-3\frac{1}{2},5\frac{1}{2})$

3862. The coordinates of the vertices of rhombus $ABCD$ are A(1,1), B(5,3), C(7,7), and D(3,5). Find the coordinates of the point of intersection of the diagonals.

(4,4)

3909. In a circle, diameter $\overline{AB}$ is drawn. The coordinates of A are (3,–4) and the coordinates of the center of the circle are (1,1). What are the coordinates of B?

(1) (–1,6)

(2) $(2,-\frac{3}{2})$

(3) (1,–6)

(4) $\left(1,\frac{-5}{2}\right)$

3836. One endpoint of a segment has coordinates (16,3). If the coordinates of the midpoint are (9,6), what are the coordinates of the other endpoint?

(1) (12.5,4.5) (3) (9,3)

(2) (2,9) (4) (25,9)

3803. Segment $\overline{AB}$ is the diameter of a circle whose center is (2,0). If the coordinates of A are (0,–3), find the coordinates of B.

(4,3)

3740. If a diameter of a circle has endpoints (–3,5) and (5,7), then the center of the circle is

(1) (1,6) (3) (–4,6)

(2) (1,1) (4) (–4,1)

3716. If M(–2,5) is the midpoint of $\overline{AB}$ and the coordinates of A are (4,7), what are the coordinates of B?

(1) (1,6) (3) (–8,6)

(2) (2,12) **(4) (–8,3)**

3672. Find the coordinates of the midpoint of the line segment whose endpoints are (2,–6) and (10,4).

(6,–1)

3645. In parallelogram $ABCD$, the coordinates of A are (3,–1) and the coordinates of C are (–1,5). Find the coordinates of the point of intersection of the diagonals.

(1,2)

3626. Circle O has center (7,–3) and diameter $\overline{AB}$. The coordinates of A are (–2,4). What are the coordinates of B?

(1) (16,–10) (3) (16,–2)

(2) (12,–2) (4) (12,–10)

3578. Segment AB is the diameter of a circle whose center is the point (2,5). If the coordinates of A are (1,3), find the coordinates of B.

(3,7)

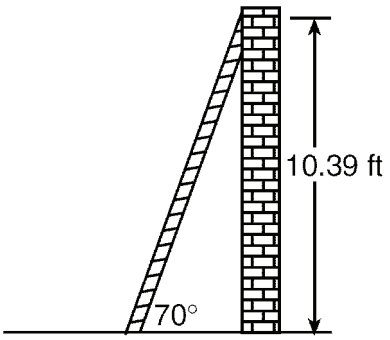
3555. The coordinates of the endpoints of a diameter of a circle are (3,7) and (–5,3). Find the coordinates of the center of the circle.

(–1,5)

7321. As shown in the accompanying diagram, a ladder is leaning against a vertical wall, making an angle of 70° with the ground and reaching a height of 10.39 feet on the wall.

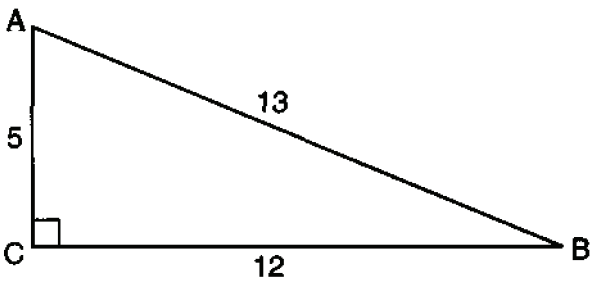
Find, to the *nearest* foot, the length of the ladder.

Find, to the *nearest* foot, the distance from the base of the ladder to the wall.



Length of ladder = 11 and the distance from the base of the ladder to the wall = 4

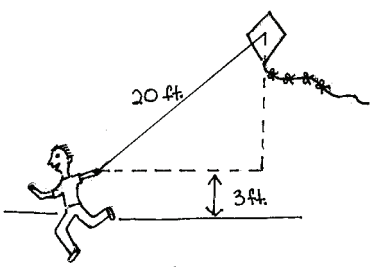
7141.



Which ratio represents cos *A* in the accompanying diagram of ΔABC?

(1) $\frac{5}{13}$
(2) $\frac{12}{13}$
(3) $\frac{12}{5}$
(4) $\frac{13}{5}$

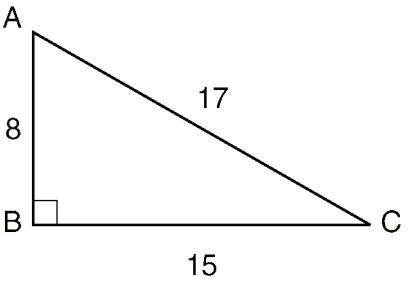
6918.



Steven is flying a kite. If the string of the kite 20 feet long and the angle between the ground and the string is 35º, how far from the ground is the kite, *to the nearest foot*?

(1) 12 feet (3) 15 feet
(2) 14 feet (4) 17 feet

7030. In the accompanying diagram of right triangle *ABC*, *AB* = 8, *BC* = 15, *AC* = 17, and m∠*ABC* = 90.



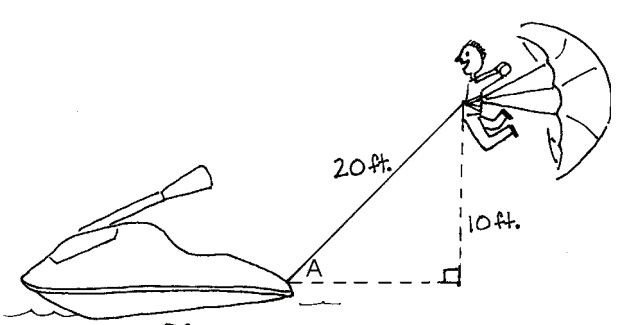
What is tan ∠*C*?

(1) $\frac{8}{15}$
(2) $\frac{17}{15}$
(3) $\frac{8}{17}$
(4) $\frac{15}{17}$

6917. A ramp extends from the door of a movie theater to the ground, as an alternative to the steps. The door of the movie theater is 5 feet above the ground level. If the angle between where the ramp meets the ground and the ground is 30º. What is the length of the ramp? How far away from the base of the building is the end of the ramp?

10 feet; $5\sqrt{3}$ feet

6867. The diagram below represents Adam, who is parasailing from his boat. Adam is 10 feet in the air from the boat, and the parasail string is 20 feet long. What is the angle of depression, angle A, from Adam to the boat?



(1) 15º (3) 45º
(2) 30º (4) 60º

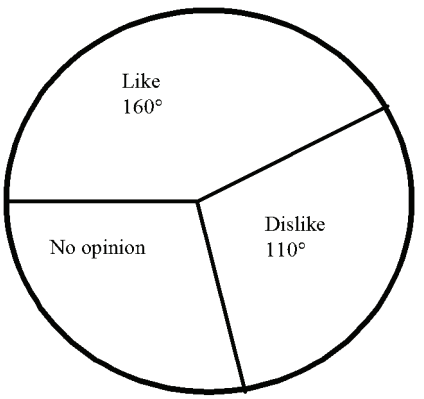
6833. Jessica is walking across a balance beam, which places her in a line of vision 10 feet above the ground. When she looks down at a spot on the ground, her angle of depression is 47º. She continues to walk across the balance beam and a minute later she stops to look down at the same spot at an angle of depression of 65º. How far, to the *nearest foot*, did she walk in the minute?

4

6788. At Michelle's new job, she must take 100 crates of newspapers and load them onto a truck. If it takes her 45 seconds to load each crate of newspapers onto the truck, how many *minutes* will the task take Michelle?

(1) 55 minutes
(3) 100 minutes
(2) 75 minutes
(4) 4500 minutes

6768. In a recent poll, 640 people were asked whether they liked Hamburger Hut. A circle graph was constructed to show the results. How many people did not have an opinion?



160

6749. A new school is being built. The length of the gym walls to the library walls are in the ratio of 3:2.

a) If the gym is 75 feet wide and 120 feet long, what is the length and width of the library?

b) What is the ratio, in simplest form, the area of the gym floor to the area of the library floor?

a) 50 wide, 80 length
b) 9:4

6732. An inheritance is divided so that the mother receives half and the remaining is split among the three children in the ratio of 5:3:2. If the smallest share was $28,256, find the amount of the original inheritance.

$282,560

6716. There are 846 freshman at Massapequa High School. If the ratio of boys to girls is 4:5, how many girls are there?

470

6704. Two numbers are in the ratio of 3:5. If 15 is subtracted from their sum, the result is 33. What is the larger number?

(1) 6
(3) 30
(2) 18
(4) 8

6695. A total of $3,627 is divided in the ratio of 2:3:4. What is the difference of the larger share and the smaller share?

(1) 403
(3) 1612
(2) 806
(4) 1209

6687. An inheritance is be be shared by family members in the ratio of 4 to 2 to 5. The inheritance is $2,728,000. Determine the amount of dollars of each family member. What was the difference of the larger share to the smaller share.

a) 992,000; 496,000; 1,240,000
b) 744,000

6684. At the football game, the ratio of boys to girls was 8:5. If there were 70 girls at the game, what was the total number of students at the game?

182

6655. A 10-foot tree casts a 15-foot shadow. How many feet tall is a nearby tree that casts a 27-foot shadow at the same time?

18

6360. A 12-foot tree casts a 16-foot shadow. How many feet tall is a nearby tree that casts a 20-foot shadow at the same time?

15

6348. There are 357 seniors in Harris High School. The ratio of boys to girls is 7:10. How many boys are in the senior class?

(1) 210
(3) 117
(2) 147
(4) 107

6245. A car travels 110 miles in 2 hours. At the same rate of speed, how far will the car travel in h hours?

(1) $55h$
(2) $220h$
(3) $\frac{h}{55}$
(4) $\frac{h}{220}$

5820. There are two trains moving in opposite directions. One train is moving at 80 miles per hour, the other at 70 miles per hour. The two trains are 300 miles apart.

How long will it take for the two trains to meet?

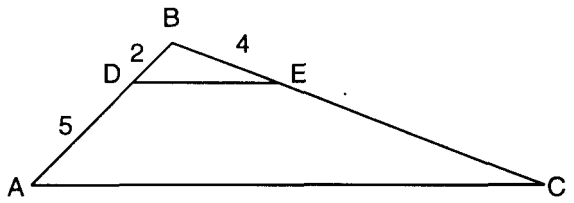
2 hrs

5819. Marie walked from her house at a constant speed of 2 miles per hour at 1:00 p.m. At 4:00 p.m., a car traveling at a constant speed of 32 miles per hour passed by Marie's house in the same direction on the same road. Both Marie and the car continue in the same direction on the road.

How long will it take for the car to catch up to Marie?

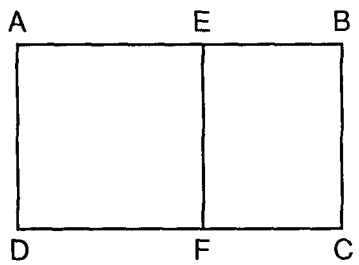
12 min or 0.2 hrs.

6144. In the accompanying diagram of ΔABC, $\overline{DE} \parallel \overline{AC}$, $BD = 2$, $BE = 4$, and $DA = 5$. Find the length of $\overline{BC}$.



14

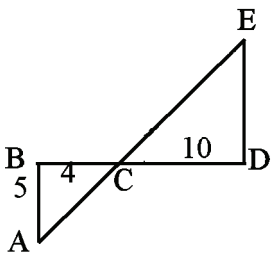
6128. In the accompanying diagram, square *ADFE* is inscribed in rectangle *ABCD*, *EB*:*AB* = 3:7, and the perimeter of *ABCD* is 132.



Find:
a the length of $\overline{AE}$
b the area of rectangle *ABCD*
c the ratio of the area of rectangle *EBCF* to the area of rectangle *ABCD*, in simplest form

***a* 24 *b* 1,008 *c* 3:7**

5862. In the accompanying diagram *AB* = 5 meters, *BC* = 4 meters, and *CD* = 10 meters. What is the length of *DE*?



7.5 m

5852. A room is in the shape of a rhombus with a side 12 feet long, and an area of 90 square feet. A second room is constructed similar to the first, but with an area of 270 square feet. What is the length, to the nearest foot, of a side of this room?

21

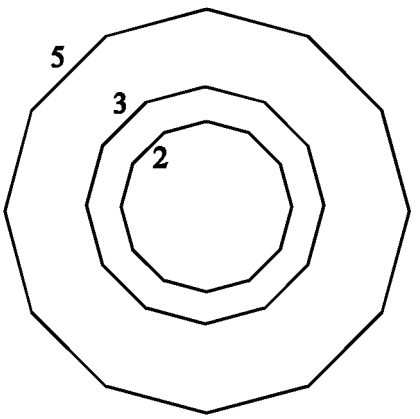
5850. A sandbox was built in the shape of an isosceles triangle with equal sides 25 feet long and the third side 40 feet long. A second sand box is constructed that is similar in shape, but has equal sides 40 feet long. How long is the third side of this sandbox?

64 ft

5813. Sean says, "If all angles of *ABCD* is equal to the corresponding angles of *EFGH*, then *ABCD* is similar to *EFGH*."

Sketch a quadrilateral *ABCD* and *EFGH* that shows that Sean's statement is not always true. Your sketch must show the length of each side and the measure of each angle for the quadrilateral you draw.

5724. The target shown is in the shape 3 regular dodecagons (12 sided figures) sharing the same center. The length of a side on the outer one is 5 inches; the middle one, 3 inches, and the inner one 2 inches. What percentage of the target is shaded? (*Note: figure is not drawn to scale.*)



20%

4825. The lengths of the sides of a triangle are 8, 11, and 14. Find the perimeter of a similar triangle whose longest side measures 21.

49.5

4749. The corresponding altitudes of two similar triangles are 6 and 4. If the perimeter of the larger triangle is 18, what is the perimeter of the smaller triangle?

12

4735. The corresponding altitudes of two similar triangles are 6 and 14. If the perimeter of the *smaller* triangle is 21, what is the perimeter of the larger triangle?

(1) 9 **(3) 49**
(2) 27 (4) 64

7599. Marilyn selects a piece of candy at random from a jar that contains four peppermint, five cherry, three butterscotch, and two lemon candies. What is the probability that the candy she selects is not a cherry candy?

(1) 0
(2) $\frac{5}{14}$
(3) $\frac{9}{14}$
(4) $\frac{14}{14}$

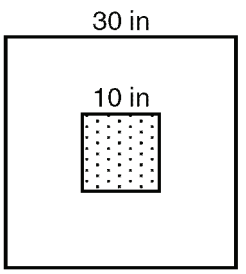
7522. A box contains 6 dimes, 8 nickels, 12 pennies, and 3 quarters. What is the probability that a coin drawn at random is *not* a dime?

(1) $\frac{6}{29}$
(2) $\frac{8}{29}$
(3) $\frac{12}{29}$
(4) $\frac{23}{29}$

7365. The faces of a cube are numbered from 1 to 6. What is the probability of *not* rolling a 5 on a single toss of this cube?

(1) $\frac{1}{6}$
(2) $\frac{5}{6}$
(3) $\frac{1}{5}$
(4) $\frac{4}{5}$

7317. The accompanying diagram shows a square dartboard. The side of the dartboard measures 30 inches. The square shaded region at the center has a side that measures 10 inches. If darts thrown at the board are equally likely to land anywhere on the board, what is the theoretical probability that a dart does not land in the shaded region?



$\frac{800}{900}$

6389. What is the probability of a team losing a game if the probability of the team winning a game is 0.735?

(1) 1
(2) 0
(3) 1.265
(4) 0.265

6931. The probability that Tanya will have a snack after school is $\frac{2}{5}$. The probability that she will have a snack after dinner is $\frac{3}{4}$. What is the probability that she will NOT have a snack today?

$\frac{3}{20}$

6096. If the probability that Geraldo will be elected president of the senior class is 0.8, what is the probability that Geraldo will *not* be elected president of the senior class?

0.2

4113. If the probability that an event will occur is $\frac{1}{x}$, then the probability that the event will not occur is

(1) x
(2) $\frac{x-1}{x}$
(3) $\frac{x+1}{x}$
(4) $\frac{1-x}{x}$

3208. If the probability of an event occuring is x, what is the probability of the event *not* occuring?

(1) $1-x$
(2) $x-1$
(3) $\frac{1}{x}$
(4) $-x$

3047. A pair of dice is rolled once. What is the probability that both dice will *not* show the same number?

$\frac{5}{6}$

2818. The party registration of the voters in Jonesville is shown in the table below.

Registered Voters in Jonesville

Party Registration	Number of Voters *Registered*
Democrat	6,000
Republican	5,300
Independent	3,700

If one of the registered Jonesville voters is selected at random, what is the probability that the person selected is *not* a Democrat?

(1) 0.333
(3) 0.600
(2) 0.400
(4) 0.667

7081. TOP Electronics is a small business with five employees. The mean (average) weekly salary for the five employees is $360. If the weekly salaries of four of the employees are $340, $340, $345, and $425, what is the salary of the fifth employee?
$350

6324. The table below shows, for selected cities, the number of days when the Pollutant Standard Index (PSI) was above the moderate level for selected eastern US cities.

Number of Days PSI Was Above the Moderate Level

Metropolitan Area	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Boston	7	3	2	5	12	2	1	3	1	3
Hartford, CT	31	17	7	18	26	8	7	14	9	9
New York	20	21	19	22	32	4	8	10	5	2
Newark	20	21	19	22	32	4	8	10	5	2
Philadelphia	31	25	21	36	34	19	11	24	3	20
Washington	30	15	12	25	36	7	5	16	2	12

a Examine the data for Philadelphia. Over the time period covered by the chart (1984 – 1993), what was the mean number of days per year that the PSI for Philadelphia was above the moderate level?
b Comparing this calculated mean to the actual days cited in 1992, what conclusion might be drawn about Philadelphia's pollution levels during that year? Justify your conclusion.
***a* 22.4**
***b* The number of days in 1992 that the pollution was above the moderate level was 3.3. This is well below the mean value of 22.4.**

7632. The mean of three numbers is 25. The second number is four less than twice the first. The third number is two more than four times the first. Find the *smallest* number.

11

7601. Andy drives 80 miles to get to the Thruway, drives 100 miles on the Thruway, and then drives an additional 75 miles after leaving the Thruway. If the entire trip took 5 hours and he made no stops, what was his average speed, in miles per hour?

(1) 51 (3) 250
(2) 65 (4) 255

7442. In his first three years coaching baseball at High Ridge High School, Coach Batty's team won 7 games the first year, 16 games the second year, and 4 games the third year. How many games does the team need to win in the fourth year so that the coach's average will be 10 wins per year?

(1) 13 (3) 3
(2) 10 (4) 9

7359. Sara's test scores in mathematics were 64, 80, 88, 78, 60, 92, 84, 76, 86, 78, 72, and 90. Determine the mean, the median, and the mode of Sara's test scores.

Mean = 79
Median = 79
Mode = 78

7585. The accompanying table represents the number of cell phone minutes used for one week by 23 users.

Number of Minutes	Number of Users
71–80	10
61–70	7
51–60	2
41–50	3
31–40	1

Which interval contains the median?

(1) 41–50 **(3) 61–70**
(2) 51–60 (4) 71–80

7301. Melissa's test scores are 75, 83, and 75. Which statement is true about this set of data?

(1) mean < mode **(3) mode = median**
(2) mode < median (4) mean = median

7245. The weights of all the students in grade 9 are arranged from least to greatest. Which statistical measure separates the top half of this set of data from the bottom half?

(1) mean **(3) median**
(2) mode (4) average