Praxis® Core - Quiz Questions with Answers

Mathematics (5733)

1.

Shanna is making a blanket that requires 540 inches of binding. How many yards of binding does Shanna need to purchase?

15

9

12

21

45

Correct answer: 15

First, you will need to convert 540 inches to feet: 540 inches / (12 inches / 1 foot) = 45 feet.

Then, you will need to convert feet to yards: 45 feet / (3 feet / 1 yard) = 15 yards.

2.

Use the stem-and-leaf plot to answer the following question.

What is the median value?

32

37

34

28

16

Correct answer: 32

In the stem-and-leaf plot, the stem represents the tens place and the numbers in the leaf positions represent the ones.

1. Since the median is the value in the middle of a set of data, determine the number of values represented in the chart.

There are 23 numbers in the leaf position, so there are 23 numbers in the chart.

2. Divide 23 by 2 to determine which value is the median.

23/2 = 11.5

Since the median is the middle value, there are 11 numbers less than the median and 11 numbers greater than the median. The 12th value is the median.

3. Count through the chart until you reach the 12th leaf.

4. Determine the number.

The stem is 3 and the leaf is 2, so the number is 32.

3.

If -5t + 8 > 35t, which of the following must be **true**?

1/5 > t

8 > t

9 > t

5 > t

1/8 > t

Correct answer: 1/5 > t

Add 5t to both sides of the equation: 8 > 40t

Divide both sides of the equation by 40: 1/5 > t

4.

In 2004, Justin earned $30,000.00 per year. In 2012, Justin was earning $48,000.00 per year. What was the percent increase in Justin's salary?

60%

58%

56%

54%

18%

Correct answer: 60%

This is a percent increase problem. Use the formula for percent change: difference ÷ original.

The difference between the two amounts is $18,000.00, and the original amount is $30,000.00.

$18,000.00 ÷ $30,000.00 = 0.6, which is 60%.

5.

Brady can grade 5 essays per hour. If he starts grading essays at 4:30 p.m., which of the following is the best estimate as to when he will be finished grading 29 essays?

10:30 p.m.

9:30 p.m.

10:00 p.m.

11:00 p.m.

11:30 p.m.

Correct answer: 10:30 p.m.

Brady must grade 29 essays, which you can estimate at 30 essays. It takes 6 hours to grade 30 essays (30/5), so Brady will finish shortly before 10:30 p.m.

6.

Solve the following proportion:

7/84 = *x*/12

1

5

14

12

7

Correct answer: 1

1. Cross multiply.

7/84 = x/12

7 × 12 = 84x

84 = 84x

2. Isolate x by dividing both sides by 84.

84/84 = 84x/84

3. Simplify.

84/84 = 84x/84

1 = x

7.

Every 30 minutes, 500 Americans are involved in vehicular accidents. How many vehicular accidents occur in 600 minutes?

10,000

18,000

5,000

9,000

12,000

Correct answer: 10,000

In order to find out how many vehicle accidents occur over a 600-minute period, you need to start by dividing:

600 ÷ 30 = 20

Now, you need to multiply:

20 × 500 = 10,000

8.

The local high school was recently moved to a new building. The old high school building contained 4,120 desks. After the move, there were 1,025 desks left at the old high school building.

Approximately how many desks were moved to the new high school building?

3,000

4,000

2,000

500

100

Correct answer: 3,000

The difference between approximately 4,000 and approximately 1,000 is 3,000. Approximations are used to save time and needless calculations.

9.

Solve for *b* if *a* is equal to -2:

$b = a^3 – 5a^2 + 7a - 1$

-43

16

-27

8

2

Correct answer: -43

1. Insert the value of a.

$b = a^3 – 5a^2 + 7a - 1$

$b = (-2)^3 – 5(-2)^2 + 7(-2) - 1$

2. Simplify.

$b = -8 – 5(4) + -14 - 1$

$b = -8 - 20 - 15$

$b = -43$

10.

Jackson bought tickets for a new television that his office was raffling off. Jackson purchased 15 tickets, George purchased 30 tickets, Amy purchased 15 tickets, and Greg purchased 45 tickets.

What is the probability that one of Jackson's tickets will be drawn as the winner of the television?

- **1/7**
- 2/7
- 3/7
- 1/4
- 1/3

Correct answer: 1/7

Probability is a fraction that expresses number of desired outcomes / total number of outcomes.

In this question, Jackson purchased 15 tickets (the number of desired outcomes) and there were a total of 105 tickets purchased (the total number of possible outcomes). Therefore, the probability of one of Jackson's tickets being drawn is 15/105, which reduces to 1/7.

11.

Sara wants to fence in her backyard, which is 36 feet long and 22 feet wide. How much fencing will Sara need in yards, considering that she does not have to provide fencing for one of the 22 foot wide sides of the yard that backs up against her house?

31 1/3 yards

94 yards

38 2/3 yards

116 yards

74 yards

Correct answer: 31 1/3 yards

1. Find how many feet of fencing Sara will need.

36 + 36 + 22 = 94 feet

2. The question asks for the answer in yards, so convert feet to yards by dividing by 3.

94 ÷ 3 = 31 1/3 yards

12.

Which of the following is a like term with $-9x^4y^3z^2$?

$2x^4y^3z^2$

$-9x^5y^3z$

$-18x^3y^2z$

$3x^4yz^2$

$2xyz$

Correct answer: $2x^4y^3z^2$

A "like term" is any term that has the same variables with the same exponents. $2x^4y^3z^2$ has the same variables with the same exponents as $-9x^4y^3z^2$, so it is a like term.

13.

Kacee has a total of $32,642 in her checking account. JoAnn has a total of $21,982 in her checking account. What is the best estimate of how many more dollars Kacee's checking account contains than JoAnn's checking account contains?

$11,000

$10,000

$8,000

$400

$5,000

Correct answer: $11,000

To find the best estimate, you would approximate the two values. $32,642 is approximately $33,000, and $21,982 is approximately $22,000.

$33,000 - $22,000 = $11,000

14.

The figure is a parallelogram. Find the measurement of ∠C.

104º

76º

180º

105º

102º

Correct answer: 104º

A parallelogram totals 360º, with diagonal angles being congruent.

1. Add 76º to 76º.

76º + 76º = 152º

2. Subtract 152º from 360º.

360º - 152º = 208º

3. Divide 208º by 2.

208º/2 = 104º

15.

A triangle's three sides are labeled AB, BC and AC. AB's length is 5x+2. BC's length is x+3. AC's length is 3x-1. What is the perimeter of the triangle?

9x + 4

8x + 4

8x + 3

4x + 5

2x + 4

Correct answer: 9x + 4

To find the perimeter of the triangle, you will need to add the lengths of each side of the triangle. The mathematical expression becomes (5x+2) + (x+3) + (3x-1).

You will then need to simplify the expression. 5x + x + 3x + 2 + 3 - 1 = 9x + 4

16.

Solve the following equation:

$x^2 + 6x + 5 = 0$

-5, -1

1, 2

-3, 2

0, 4

0, 0

Correct answer: -5, -1

1. Factor the quadratic equation.

$x^2 + 6x + 5 = 0$

$(x + 5)(x + 1) = 0$

2. Set each factor equal to 0 and solve for x.

$x + 5 = 0$

$x = -5$

$x + 1 = 0$

$x = -1$

The solution is -5, -1.

17.

What does x equal if (5x + 1) * 3 = 48?

3

1

6

-3

8

Correct answer: 3

First, multiply 5x by 3 and 1 by 3: 15x + 3 = 48

Then, subtract 3 from each side of the equation : 15x = 45

Now, divide each side of the equation by 15: x = 3

18.

What is the most basic building block in geometry?

Point

Line

Plane

Angle

Shape

Correct answer: Point

The point is the most basic building block in geometry. It is an exact and infinitely small location, and makes up all the physical realities studied in geometry.

A line is a continuous set of an infinite number of points extending infinitely in two directions. A plane is a flat surface that goes forever in all directions, and contains an infinite number of points. An angle is a geometric figure formed by two lines that converge at one point.

19.

View the *supporting details* to answer the following question.

Which month saw the largest percent increase in popcorn sales from 2009 to 2010?

January

May

June

February

Correct answer: January

First, eliminate any answer choice that does not increase. May and June did not see an increase.

Next, calculate the percent increase using the percent change formula (difference / original). The total in January 2009 was $900.00 and the total in January 2010 was $950.00.

The percent change fraction is $50/$900.00, which equals the largest percent increase at 5.6%.

20.

Corey spends 1/12 of his monthly budget on food and 1/3 of his monthly budget on rent and utilities. If he spends $2,000 each month on rent and utilities, how much does he spend each month on food?

$500

$700

$1,000

$300

$600

Correct answer: $500

1. Since we know that $2,000 represents 1/3 of Corey's monthly budget, find his total monthly budget by setting up an equation, with x representing his total monthly budget.

$2,000 = 1/3x

x = $6,000

2. The question asks how much Corey spends on food, which is 1/12 of his monthly budget. Multiply his budget by 1/12 to find the answer.

$6,000 × 1/12 = $500

Corey spends $500 per month on food.

21.

3 more than 8 times a number is 27. What is the number?

3

4

6

2

9

Correct answer: 3

In algebraic form, the equation is 3 + 8n = 27.

To solve the equation, subtract 3 from both sides of the equation, giving you 8n = 24.

Divide both sides by 8 to get n = 3.

22.

Brandon's math average is based on five tests. Brandon's test scores were 75, 83, 94, 85, and 98. What is Brandon's math average for the five tests?

87

77

80

85

90

Correct answer: 87

To find the average, take the sum of the scores and divide it by the number of tests.

435 / 5 = 87

23.

Each of the 50 judges is asked to select one and only one robe to wear. There are 25 grey robes available and 25 black robes available. At this instant, 35 of the total robes have been selected.

Which of the following facts can be determined from the information given above?

The number of judges in the group that have not yet chosen a robe

The number of judges that selected a grey robe

The number of male judges that selected a black robe

The total number of judges in the United States

The ratio of male judges to female judges who chose a black robe

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Correct answer: The total number of judges in the group that have not yet chosen a robe

You will want to eliminate the answer choices you know are wrong and focus on the information you are given.

You know that 35 of the robes have been selected, and that there are a total of 50 judges who are selecting a robe. Therefore, you can determine the number of judges who have not yet chosen a robe.

24.

1/5 is how many times greater than 1/100?

20

10

15

5

50

Correct answer: 20

The mathematical expression would be:

*1/5 ÷ 1/100 = 1/5 * 100/1 = 100/5 = 20*

25.

Dave and Bryan rode a total of 235 miles today. If Dave rode 37 more miles than Bryan, how many miles did Bryan ride?

99

198

136

37

76

Correct answer: 99

Backsolving is the easiest way to solve this problem. To backsolve, choose the answer choice that is the middle option to start with, and work toward the correct answer.

99 is the middle option in the answer bank. If Dave and Bryan rode a total of 235 miles and Bryan rode 99 miles, that would leave Dave riding 136 of the miles. Dave's 136 miles less Bryan's 99 miles equals 37 miles. Thus, you can determine Dave rode 37 more miles than Bryan.

You can also solve this problem by setting up the algebraic equation:

$(37 + x) + x = 235$

$37 + 2x = 235$

$2x = 198$

$x = 99$

26.

If Shelly eats 3/8 of a pie and Charlie eats half as much as Shelly eats, what fraction of the pie is left?

7/16

9/16

5/8

7/8

1/2

Correct answer: 7/16

1. Find the fraction of the pie that Charlie eats.

3/8 × 1/2 = 3/16

2. Change 3/8 to have the same denominator as 3/16.

(3 × 2)/(8 × 2) = 6/16

3. Add the amount that Shelly eats to the amount that Charlie eats.

6/16 + 3/16 = 9/16

4. Subtract the portion eaten from the total amount of pie.

1 - 9/16 =

16/16 - 9/16 = 7/16

27.

June uses her own car to travel for work. Within the last month, June made 5 trips to Columbus, and 8 trips to Cleveland. The mileage reimbursement is $0.50 per mile. The round trip to and from Columbus is 110 miles, and the round trip to and from Cleveland is 250 miles. June uses the following expression to calculate her mileage reimbursement for the trips:

5($0.50 x 110) + 8($0.50 x 250)

Which of the following expressions could June have also used?

5 x $55.00 + 8 x $125.00

13($0.50 x 360)

5 + 8($0.50 x 110 + 250)

5($0.50 x 250) x 8

Correct answer: 5 x $55.00 + 8 x $125.00

If you solve the expression given to you, you have $275.00 + $1,000.00 = $1,275.00. Therefore, the correct answer needs to produce a value of $1,275.00.

The expression 5 x $55.00 + 8 x $125.00 = $1,275.00. This yields the same value as the given expression, so it is the correct answer.

13($0.50 x 360) would yield $2,340 as an answer.

5 + 8($0.50 x 110 + 250) would yield $2,445 as an answer.

5($0.50 x 250) x 8 would yield $5,000 as an answer.

28.

What is the eleventh term of the following sequence?

5, 6, 4, 5, 3, 4...

0

-2

1

3

-1

Correct answer: 0

1. Find the relationship between the first two terms.

5 + 1 = 6

2. Find the relationship between the second and third terms.

6 - 2 = 4

3. Find the relationship between the third and fourth terms.

4 + 1 = 5

4. Find the relationship between the fourth and fifth terms.

5 - 2 = 3

5. Therefore, the established pattern is "plus one, minus two." Using this pattern, find the 11th term.

3 + 1 = 4 (6th term)

4 - 2 = 2 (7th term)

2 + 1 = 3 (8th term)

3 - 2 = 1 (9th term)

1 + 1 = 2 (10th term)

2 - 2 = 0 (11th term)

29.

Which of the following numbers is the lowest?

3.2, 33/15, 2 1/4, 3.201, 4.1

33/15

3.2

3.201

2 1/4

4.1

Correct answer: 33/15

1. Convert the improper fraction to a mixed number.

33/15 = 2 3/15 = 2 1/5

2. The question asks for the lowest number, and since we know that 2 1/5 and 2 1/4 are less than 3.2, 3.201 and 4.1, compare these two by making the denominators the same.

2 1/5 = (11 × 4)/(5 × 4) = 44/20

2 1/4 = (9 × 5)/(4 × 5) = 45/20

Therefore, since 44 is less than 45, 2 1/5 (33/15) is the smallest number.

30.

The figure shown is composed of a cylinder with a height of 50 inches and a cone with a height of 30 inches. The cylinder and the cone share a base that has a radius of 40 inches. What is the volume of the figure the cylinder and cone compose?

96000π in^3

80000π in^3

16000π in^3

24000π in^3

22000π in^3

Correct answer: 96000π in^3

1. Find the volume of the cylinder.

Volume of a cylinder = $\pi r^2 h$

$V = \pi(40in^2)(50in) = 80000\pi\ in^3$

2. Find the volume of the cone.

Volume of a cone = $(1/3)(\pi r^2 h)$

$V = (1/3)(\pi)(40in^2)(30in) = 16000\pi\ in^3$

3. Add the volumes together.

$80000\pi + 16000\pi = 96000\pi\ in^3$

31.

Wayne shipped 476 phones over a 14-day period. On average, how many phones did Wayne ship per day?

34

19

26

68

119

Correct answer: 34

In order to find out the average number of phones that were shipped each day, you will need to divide:

476 / 14 = 34

32.

What is the volume of the pyramid?

480

360

720

520

Correct answer: 480

V = lwh / 3

V = 12 x 12 x 10 / 3 = 480

V = 480

33.

What is the circumference of a circle that has an area of $36\pi\ m^2$?

12π m

6π m

24π m

4π m

8π m

Correct answer: 12π m

1. Find the radius of the circle.

$A = \pi r^2$

$36\pi = \pi r^2$

$36 = r^2$

$r = 6\ m$

2. Find the circumference.

$C = 2\pi r$

$C = 2\pi(6)$

$C = 12\pi\ m$

34.

Find the product of the following:

-2 × 3 × -7 × -4 × -1

168

-168

-112

109

160

Correct answer: 168

1. Remove the negative signs and find the product of the integers.

2 × 3 × 7 × 4 × 1 = 168

2. Because the number of negative integers in the problem is four (-2, -7, -4, and -1), an even number, the product is positive.

-2 × 3 × -7 × -4 × -1 =

-6 × -7 × -4 × -1 =

42 × -4 × -1 =

-168 × -1 = 168

35.

If the value of y is between 2.089 and 3.180, which of the following could be the value of y?

2.918

2.078

1.998

3.189

3.208

Correct answer: 2.918

First, eliminate any answer choice that is not greater than 2.089. This will eliminate answer choices 1.998 and 2.078.

Next, eliminate any answer choice that is not less than 3.180. This will eliminate answer choices 3.189 and 3.208.

The remaining answer choice is 2.918, the correct answer. 2.918 is located between 2.089 and 3.180.

36.

What is the measure of ∠AMQ?

148º

116º

135º

152º

156º

Correct answer: 148º

First find ∠A. The total number of degrees in any triangle is 180.

1. Subtract 74º from 180º.

180º - 74º = 106º

2. ∠B is a right angle, so subtract 90º from 106º.

106º - 90º = 16º

3. Since ΔAMQ is isoceles, we know that ∠AQM is also 16º.
Subtract ∠AQM and ∠A from 180º to find ∠AMQ.

180º - 16º - 16º = 148º

37.

Last month, Kristina weighed 186 3/4 pounds. This month, she weighs 179 1/2 pounds. What is the difference between what she weighed this month and what she weighed last month?

7 1/4

6 3/4

6 1/2

6 1/4

7 1/2

Correct answer: 7 1/4

To find the difference, convert all fractions to give them all the same denominator.

186 3/4 - 179 2/4 = 7 1/4.

If you use the Bowtie method, you will first need to convert the mixed numbers to improper fractions. 186 3/4 = 747/4, and 179 1/2 = 359/2.

Then, 747/4 - 359/2 = (1494 - 1436)/8 = 58/8 = 29/4 = 7 1/4.

38.

In the first four hours of apple picking, Charlie picked 61, 57, 72, and 60 apples, respectively. If the average number of apples Charlie picked per hour for the first five hours was 60, how many apples did he pick in the fifth hour?

50

60

55

65

70

Correct answer: 50

1. For the average of a set of data, the sum of the data entries is equal to the product of the average and the number of entries.

Average = Sum of data entries ÷ Total number of entries

Sum of data entries = Average × Total number of entries

2. Since the average number of apples picked during the first five hours is 60, the number of apples picked during that time was:

60 × 5 = 300 apples

3. The number of apples picked in the fifth hour is the number of apples picked in five hours minus the number of apples picked in the first four hours.

300 - (61 + 57 + 72 + 60) = 300 - 250 = 50 apples

39.

How many hours are there in three weeks?

504

168

332

24

84

Correct answer: 504

In order to solve the problem, you need to convert the units from weeks to hours, as follows:

*1 week * 7 days / 1 week * 24 hours / 1 day = 168 hours. There are 168 hours in one week.*

Multiply by 3 to get 504 hours in three weeks.

40.

The diameter of a given sphere is 8 inches. What is the surface area of the sphere?

64π in^2

12π in^2

28π in^2

72π in^2

60π in^2

Correct answer: 64π in^2

1. Find the radius of the sphere.

Diameter = 2r

8 = 2r

r = 4 inches

2. Find the surface area of the sphere.

Surface area of a sphere = $4\pi r^2$

$A = 4\pi(4^2)$

$A = 4\pi(16)$

$A = 64\pi$ in^2

41.

What is 0.3864 rounded to the nearest hundredth?

0.39

0.38

0.4

0.3

0.386

Correct answer: 0.39

First, the answer must be rounded to the nearest hundredth, so eliminate answer choices 0.4, 0.3, and 0.386.

To round 0.3864 to the nearest hundredth, you need to look at the digit in the thousandths place. The digit is 6. Rounding tells you that if a digit is 5 or greater, round up.

Thus, you need to round the digit in the hundredth place from 8 up to 9: 0.39.

42.

Ruth bakes 25 pies every day. How many pies does Ruth bake in 15 days?

375

40

125

250

425

Correct answer: 375

In order to find out how many pies were baked over the 15-day period, you need to multiply:

*25 * 15 = 375*

43.

Megan has exactly 23 weeks until she retires. How many hours does Megan have before she retires?

3,864

161

892

1,759

4,254

Correct answer: 3,864

*First, you will need to convert 23 weeks to days: 23 weeks * 7 days / 1 week = 161 days.*

*Then, convert 161 days to hours: 161 days * 24 hours / 1 day = 3,864 hours.*

44.

Consider the following statement: If Darla orders lasagna for lunch, she will not eat the breadsticks.

Which of the following statements must be **true**?

If Darla ate breadsticks for lunch, she did not order lasagna

Darla ate lasagna with breadsticks for lunch

If Darla did not eat breadsticks, she must have ordered lasagna

Darla will not eat breadsticks for lunch

Darla does not like breadsticks

Correct answer: If Darla ate breadsticks for lunch, she did not order lasagna

The statement is an "If-Then" statement. Identify the contrapositive.

In this question, the contrapositive is: "If Darla ate breadsticks for lunch, she did not order lasagna."

The statement does not suggest that Darla does not like breadsticks, nor does it suggest what exactly Darla will order for her lunch.

45.

Wendy and Robin cut a total of 156 heads of hair this week. If Wendy cut 14 more heads of hair than Robin did, how many heads of hair did Robin cut?

71

48

14

64

Correct answer: 71

Backsolving is the easiest way to solve this problem. To backsolve, choose the answer choice that is the middle option to start with, and work toward the correct answer.

64 is the middle option in the answer bank. If Wendy and Robin cut a total of 156 heads of hair and Robin cut 64, that would leave Wendy cutting 92 heads of hair. Wendy's 92 heads of hair less Robin's 64 heads of hair equals 28 heads of hair. This answer choice proves to be too low, as you only want Wendy cutting 14 more heads of hair than Robin, so you need to choose the answer choice that is higher than 64.

The answer choice that is higher than 64 is 71. If Wendy and Robin cut a total of 156 heads of hair and Robin cut 71, that would leave Wendy cutting 85 heads of hair. Wendy's 85 heads of hair less Robin's 71 heads of hair equals 14 heads of hair. Thus, you can determine Wendy cut 14 more heads of hair than Robin did.

You can also solve this problem by setting up the algebraic equation:

$(x + 14) + x = 156$

$14 + 2x = 156$

$2x = 142$

$x = 71$

46.

What is the difference between 1.6 and 0.154?

1.446

0.06

1.584

1.754

1.06

Correct answer: 1.446

When subtracting decimals, be sure to align the decimals vertically:

1.600
-0.154
=1.446

47.

What is the measure of ∠A?

16º

106º

24º

8º

72º

Correct answer: 16º

The total number of degrees in any triangle is 180.

1. Subtract 74º from 180º.

180º - 74º = 106º

2. ∠B is a right angle, so subtract 90º from 106º.

106º - 90º = 16º

48.

What is the sum of 10 1/3, -9 2/9, and 5 2/3?

6 7/9

7 2/9

25 2/9

24 7/9

25 7/9

Correct answer: 6 7/9

Add the three fractional amounts. In order to get the same denominator for each fraction, change 1/3 to 3/9, and 2/3 to 6/9.

Then, add the numbers, remembering that 9 2/9 is negative.

10 3/9 - 9 2/9 + 5 6/9 = 6 7/9

49.

Lillian took six tests during one semester of math class. What is the range of her test scores?

68 87 81 93 89 75

25

82

84

93

12

Correct answer: 25

The range of a set of numbers is the difference between the highest and lowest scores.

1. Order the numbers from least to greatest.

68 75 81 87 89 93

2. Subtract the lowest score from the highest.

93 - 68 = 25

50.

E.J. was averaging his test scores and came up with 91.9998 as his answer. What is E.J.'s average test score, rounded to the nearest tenth?

92.0

91.0

91.90

91.8

90

Correct answer: 92.0

First, eliminate answer choices 91.90 and 90. These answer choices are not rounded to the nearest tenth.

To round 91.9998 to the nearest tenth, you need to look at the digit in the hundredths place. The digit is 9. Rounding tells you that if the digit is 5 or greater, round up.

Thus, you need to round the digit in the tenths place from 9 up to 10, making 91.9998 go to 92.0.

51.

What is the area of the triangle in the graph?

7.5

12

15

9

8.5

Correct answer: 7.5

1. Find the measurements of the triangle.

To find the area of a triangle, we only need to know the base and height. Based on the measurements in the graph, a is 5 and b is 3.

2. Find the area of the triangle.

Area = (1/2)(base)(height)

A = (1/2)(3)(5)

A = (1/2)(15) = 7 1/2, or 7.5

52.

If 4d + 4 < 40, which of the following must be **true**?

d < 9

d < -9

d > 4

d > 36

d < 8

Correct answer: d < 9

Subtract 4 from both sides of the equation: 4d < 36

Divide both sides of the equation by 4: d < 9

53.

Susan counted the berries as she was picking them. She counted 268, 292, 148, 109, and 349. Rounding each number to the nearest hundred, what is the sum of the berries Susan picked?

1,100

1,200

1,000

900

1,300

Correct answer: 1,100

Rounding tells you that if the number is between x00 and x49, round down, or if it is between x50 and x99, round up.

This is how you would round the numbers in the question: 268 = 300, 292 = 300, 148 = 100, 109 = 100, and 349 = 300.

Now, you need to sum the numbers that are rounded: 300 + 300 + 100 + 100 + 300 = 1,100.

If you would have summed the numbers first, you would have received 1,166, which would be rounded to 1,200.

54.

The pharmacy filled 25 brand name prescriptions, 35 generic prescriptions, and some over-the-counter (OTC) prescriptions. There is a 1 to 3 ratio of generic prescriptions to OTC prescriptions.

Which of the following numbers in the problem are needed to find the total number of OTC prescriptions that were filled?

35, 1, and 3 only

25, 1, and 3 only

35, 25, 1, and 3

1 and 3 only

35, 25, and 3 only

Correct answer: 35, 1, and 3 only

In order to find the actual number of OTC prescriptions, you need the initial ratio, plus one actual number. The initial ratio of generic to OTC is 1 to 3, and the actual number of generic is 35.

You do not need the fact that there were brand name prescriptions filled. This piece of information does nothing to help you solve the ratio box involving generic and OTC.

55.

View the *supporting details* to answer the following question.

The information given shows the starting speed and ending speed for five consecutive days. If the same speed increase occurs throughout each day, what was the starting speed on day 5?

33

33 1/4

33 1/2

34

Correct answer: 33

Each day the speed increases 3 1/4. If you add this to day 4's starting speed, the ending speed will be 33. This would also be the starting speed for day 5.

56.

Elizabeth bought two pairs of shoes for $44.99 each, three dresses for $29.98 each, and a belt for $14.79. She then used a coupon for 10% off her entire purchase. How much did she pay in total?

$175.24

$194.71

$162.80

$157.44

$151.98

Correct answer: $175.24

1. Multiply each amount by the number of items Elizabeth bought.

$44.99 × 2 = $89.98

$29.98 × 3 = $89.94

$14.79 × 1 = $14.79

2. Add all of these totals together.

$89.98 + $89.94 + $14.79 = $194.71

3. Multiply the total by 10% to determine Elizabeth's discount.

$194.71 × 0.10 = $19.47

4. Subtract Elizabeth's discount from her total to find the amount she paid.

$194.71 - $19.47 = $175.24

57.

Dividing a number by 4 is the same as multiplying that number by:

1/4

1/2

4

2

0.4

Correct answer: 1/4

If you select the number 20, and divide it by 4, the result is 5. If you multiply the number 20 by 1/4, the result is 5.

1/4 means 1 divided by 4.

58.

Jason can build 5 storage barns a week. Peter can build 7 storage barns a week. Jason and Peter receive an order for 180 storage barns. If they work together, how many weeks will it take Jason and Peter to complete the order?

15 weeks

12 weeks

36 weeks

26 weeks

24 weeks

Correct answer: 15 weeks

Together, Jason and Peter can build 12 storage barns a week. Divide 180 storage barns by 12 storage barns a week, and you get 15 weeks.

59.

John adopted his dog exactly 5 years and 12 days ago. At this instant, how many minutes has John had his dog?

2,645,280 minutes

1,837 minutes

44,088 minutes

1,825 minutes

110,220 minutes

Correct answer: 2,645,280 minutes

Start by finding the number of days in 5 years.

*5 years * (365 days / 1 year) = 1,825 days*

Add the 12 days.

1,825 days + 12 days = 1,837 days

Convert the number of days to hours.

*1,837 days * (24 hours / 1 day) = 44,088 hours*

Convert the number of hours to minutes.

*44,088 hours * (60 minutes / 1 hour) = 2,645,280 minutes*

John had his dog for 2,645,280 minutes when he had him for exactly 5 years and 12 days.

60.

The stem-and-leaf plot shows student heart rates after doing 1 minute of jumping jacks.

What is the mode?

99 beats/minute

90 beats/minute

115 beats/minute

121 beats/minute

154 beats/minute

Correct answer: 99 beats/minute

In a stem-and-leaf plot, the tens place is represented by the stem and the ones place is represented by the leaf. The mode is the number that appears most often. Because 99 appears three times, it is the mode.

- *90 appears 0 times, so it is not the mode*
- *115 appears 0 times, so it is not the mode*
- *121 appears only 1 time, so it is also incorrect*

61.

When the sum of 3.218 and 6.839 is rounded to the nearest tenth, the result is:

10.1

10.06

10.0

10.05

10.2

Correct answer: 10.1

First, the answer must be rounded to the nearest tenth, so eliminate answer choices 10.06 and 10.05.

Next, add the two values together, but do not round yet. You are looking to round the sum, not the individual numbers. The equation: 3.218 + 6.839 yields a result of 10.057.

Now, you can round to the nearest tenth; the 5 digit in the hundredths place indicates that you need to round up. The correct answer is 10.1.

If you had rounded each number initially, the values would be 3.2 + 6.8, and the sum would be 10.0.

62.

Darla makes $56,000.00 a year. Her company just announced that it is giving a 3.0% cash bonus to all of its employees, based on the employee's annual salary. How much will Darla's bonus be?

$1,680.00

$1,200.00

$1,600.00

$1,280.00

$1,480.00

Correct answer: $1,680.00

*You will need to multiply to get the amount of Darla's bonus: $56,000.00 * 0.03 = $1,680.00.*

63.

Simplify the following:

$(x + 3)(x - 9)$

$x^2 - 6x - 27$

$3x^2 - 9$

$x^2 - 27$

$2x^2 - 6x - 6$

$2x - 6$

Correct answer: $x^2 - 6x - 27$

Use the FOIL (first, outside, inside, last) method.

1. Multiply x and x (first terms).

$x * x = x^2$

2. Multiply x and -9 (outside terms).

$x * -9 = -9x$

3. Multiply 3 and x (inside terms).

$3 * x = 3x$

4. Multiply 3 and -9 (last terms).

$3 * -9 = -27$

4. Combine the terms.

$x^2 + -9x + 3x + -27$

5. Simplify.

$x^2 - 6x - 27$

64.

What is the circumference of a circle with a diameter of 6?

18.84

12.62

15.06

20.72

16.52

Correct answer: 18.84

1. Find the radius.

Diameter = 2r

6 = 2r

r = 3

2. Find the circumference.

Circumference of a circle = 2πr

C = 2π(3)

C = 6π

C = 6(3.14) = 18.84

65.

Julie buys a car with power windows, air conditioning, and a sun roof. The car costs $20,000.00, and the options costs $500.00 each. Julie pays with a $22,000.00 check. Julie uses the following expression to calculate the amount of money she should receive back from the purchase:

$22,000.00 - ($20,000.00 + $500.00 + $500.00 + $500.00)

Which of the following expressions could Julie have also used?

$22,000.00 - $20,000.00 - 3($500.00)

3 * ($22,000.00 - $25,000.00 - $500.00)

$20,000.00 + (3 * $500.00) - $22,000.00

$500.00 - $22,000.00 + $20,000.00

3($22,000.00 - $500.00) + ($22,000.00 - $20,000.00)

Correct answer: $22,000.00 - $20,000.00 - 3($500.00)

If you solve the expression given to you, you have $22,000.00 - $21,500.00 = $500.00. Therefore, the correct expression needs to produce a value of $500.00.

The expression $22,000.00 - $20,000.00 - 3($500.00) = $500.00. This yields the same value as the given expression, so it is the correct answer.

66.

Ken needs to increase his weekly pay to $248.00. Ken currently works 20 hours a week and earns $7.75 an hour. How many additional hours would Ken need to work in order to meet his goal of $248.00 per week?

12

10

8

14

16

Correct answer: 12

First, you need to calculate the current amount of money that Ken earns per week. By multiplying 20 by $7.75, you find that Ken earns $155.00 per week.

To get to $248.00 per week, Ken needs to increase his weekly pay by $93.00.

Divide this total by his rate of $7.75 per hour, and you get the answer: 12 more hours.

67.

Multiplying a number by 1/8 is the same as dividing that number by:

- **8**
- 16
- 1/16
- 0.125
- 0.16

Correct answer: 8

If you select the number 16, and multiply it by 1/8, the result is 2. If you divide the number 16 by 8, the result is 2.

1/8 means 1 divided by 8.

68.

Solve the following:

$[(7 - 2)^4 + 3 \times 5] - 4 + 8 \times 3$

660

9,432

1,932

997

332

Correct answer: 660

Use the acronym GEMDAS (Grouping, Exponents, Multiplication and Division, Addition and Subtraction) to solve.

1. Since the first term in GEMDAS is grouping, work on the calculations in brackets first, starting with the calculation in parentheses.

$[(7 - 2)^4 + 3 \times 5] - 4 + 8 \times 3$

$[5^4 + 3 \times 5] - 4 + 8 \times 3$

2. The second term in GEMDAS is exponents, so calculate the exponent next.

$[5^4 + 3 \times 5] - 4 + 8 \times 3$

$[625 + 3 \times 5] - 4 + 8 \times 3$

3. The third and fourth terms in GEMDAS are multiplication and division, so multiply next.

$[625 + 3 \times 5] - 4 + 8 \times 3$

$[625 + 15] - 4 + 24$

4. The fifth and sixth terms in GEMDAS are addition and subtraction.

[625 + 15] – 4 + 24

640 – 4 + 24

636 + 24 = 660

69.

Vicky has a handful of jelly beans. None of her jelly beans are colored black. Some of the jelly beans are colored purple. The jelly beans are colored purple, orange, yellow, or pink, but no jelly bean has more than one color on it.

Which of the following statements must be **true**?

Vicky has more purple jelly beans than black jelly beans

Vicky has more jelly beans colored purple than any other color

Vicky's favorite jelly bean is purple

Vicky has more pink jelly beans than yellow jelly beans

Vicky's favorite jelly bean is colored purple, pink, and orange

---

Correct answer: Vicky has more purple jelly beans than black jelly beans

To find the true statement, look at each answer choice and eliminate those that are incorrect.

You do not know the number of each colored jelly bean that Vicky has, nor do you know which colored jelly bean is her favorite.

You do know that each jelly bean can only be one color, and black is not one of them, but purple is.

Therefore, you know that Vicky has more jelly beans colored purple than black.

70.

Which of the following fractions is between 2/3 and 4/5?

3/4

1/5

1/3

2/5

1/2

Correct answer: 3/4

2/3 reduces to 0.667 and 4/5 reduces to 0.8.

3/4 reduces to 0.75, which falls between 0.667 and 0.8.

Therefore, 3/4 is the correct answer.

71.

View the *supporting details* to answer the following question.

If Movie NC-17 is the shortest of all five movies, what is one possible start time for Movie NC-17?

8:25

8:15

8:00

7:45

Correct answer: 8:25

The shortest movie given is G, which runs for 85 minutes. If Movie NC-17 ends at 9:45, it must not be longer than 84 minutes, or start before 8:21. Thus, 8:25 is the correct answer.

72.

If $f(x) = 4x^2 - 6x + 2$, what is the value of $f(8)$?

210

64

148

204

16

Correct answer: 210

1. Insert 8 for x in the equation.

$4x^2 - 6x + 2 =$

$4(8)^2 - 6(8) + 2$

2. Simplify.

$4(8)^2 - 6(8) + 2 =$

$4(64) - 48 + 2 =$

$256 - 46 = 210$

73.

Of the following fractions, which is the greatest?

3/5

-4/9

7/13

-1/3

4/7

Correct answer: 3/5

First, estimate, using the answer choices. Eliminate any number that is negative: -1/3 and -4/9.

You can compare the remaining answer choices by reducing them.

7/13 is 0.54, 4/7 is 0.57, and 3/5 is 0.6, which is the greatest.

74.

If n + z(1/4) - w = p - 6, what is the value of z when n = 12, w = 2, and p = 18?

8

1/2

2

4

2 1/4

Correct answer: 8

Here is the equation you are given: n + z(1/4) - w = p - 6

Now, substitute the values you are given for n, w, and p:

12 + z(1/4) - 2 = 18 - 6

10 + z(1/4) = 12

z(1/4) = 2

z = 8

75.

Gary eats 2 hamburgers a day. If each hamburger weighs 6 ounces, how many pounds of hamburger does Gary eat per week?

5 pounds, 4 ounces

84 pounds

4 pounds, 5 ounces

5 pounds, 2 ounces

3 pounds, 12 ounces

Correct answer: 5 pounds, 4 ounces

*First, calculate the total number of ounces of hamburger that Gary consumes per week. Each day, he eats 12 ounces of hamburger (2 * 6). Multiply 12 by 7 to get his weekly total of 84 ounces.*

Now, convert ounces to pounds. There are 16 ounces to 1 pound. 84 divided by 16 is 5, with a remainder of 4.

76.

If the value of y is between -0.60 and 0.01, which of the following could be the value of y?

-0.1

-0.75

0.11

-0.65

0.21

Correct answer: -0.1

-0.10 is between -0.60 and 0.01. -0.75 and -0.65 are smaller than -0.60, and 0.11 and 0.21 are greater than 0.01.

77.

What percentage of the number of people represented in the graph own dogs?

23.5%

8.0%

28.5%

33.9%

25.0%

Correct answer: 23.5%

1. Determine the total number of people represented.

4 + 8 + 11 + 6 + 5 = 34

2. Determine the number of dog owners in proportion to the total number of people.

Dog owners = 8 people

8/34 = fraction of people who own dogs

3. Divide to find the percentage.

8/34 = 23.5%

78.

Karen sells hamburgers for $2.50 and hot dogs for $1.00. In the month of July, Karen sold 300 hamburgers and 300 hot dogs. Karen uses the following expression to calculate July's revenue:

($2.50 * 300) + ($1.00 * 300)

Which of the following expressions could Karen have also used?

300 * ($2.50 + $1.00)

(600 * $2.50) + $1.00

600 * $3.50

(300 + 300) * ($2.50 + $1.00)

600 / ($2.50 + $1.00)

---

*Correct answer: 300 * ($2.50 + $1.00)*

If you solve the expression given to you, you have $750.00 + $300.00 = $1,050.00. Therefore, the correct answer needs to produce a value of $1,050.00.

*The expression 300 * ($2.50 + $1.00) = $1,050.00. This yields the same value as the given expression, so it is the correct answer.*

79.

x * x * x * x * x = ?

- **x^5**
- 5x
- x/5
- 0
- 2x

Correct answer: x5

Any time a variable is multiplied by itself, the variable remains the same but the exponent represents how many times a variable is a factor. Since x is multiplied by itself 5 times, the answer is x5.

80.

View the *supporting details* to answer the following question.

Using the table of data, place the following students' scores in order, from highest to lowest.

Holly, Blaine, Clay, Ashton

Blaine, Clay, Ashton, Holly

Clay, Ashton, Holly, Blaine

Ashton, Holly, Blaine, Clay

Correct answer: Holly, Blaine, Clay, Ashton

From the second column, you can rank three students based upon the information given: Holly, Blaine, and Clay. Ashton's percentile is not given, but because he had more incorrect answers (8) than Clay (7), his score must be lower than Blaine's.

81.

View the *supporting details* to answer the following question.

Which vehicle saw the largest percent increase in sales from 2008 to 2009?

Sport Coupe

SUV

Truck

Crossover

Correct answer: Sport Coupe

Calculate the percent increase using the percent change formula (difference / original). The total for the Sport Coupe in 2008 is 500 and 550 in 2009.

The percent change fraction is 50/500, thus giving you the largest percent increase at 10.0%.

82.

Lori was having a bake sale. She was selling chocolate chip cookies for $0.50, peanut butter cookies for $0.75, and banana bread for $1.25. If Lori sold 15 chocolate chip cookies, 20 peanut butter cookies, and 5 banana breads, how much money did she make?

$28.75

$28.00

$40.00

$18.50

$22.50

Correct answer: $28.75

In order to find the amount of money that Lori made, you will need to multiply the number sold of each kind of item by that item's individual price.

Next, add those figures to obtain a total:

15($0.50) + 20($0.75) + 5($1.25) = $28.75

83.

At a certain high school, 7 out of every 10 students will end up going to college. If there are 310 students, how many are expected to go to college?

217

70

31

210

163

Correct answer: 217

This is a proportion question. You are given the relationship: 7 students go to college / 10 total students.

If you set this to equal your unknown relationship, you will have the following equation: 7 students go to college / 10 total students = x students go to college / 310 students.

If you cross multiply, you get 10x = 2,170.

x = 217

84.

If the value of x is between 0.082 and 0.108, which of the following could be the value of x?

0.095

0.109

0.117

0.210

0.079

Correct answer: 0.095

First, eliminate any answer choice that is not greater than 0.082. This will eliminate answer choice 0.079.

Next, eliminate any choice that is not less than 0.108. This will eliminate answer choices 0.109, 0.117, and 0.210.

The remaining answer choice, 0.095, is the correct answer.

85.

What is the radius of a circle with a circumference of 32π units?

16

32

22

8

12

Correct answer: 16

1. Use the formula for circumference and solve for r.

C = 2πr

32π = 2πr

2. Divide each side by 2π.

32π/2π = 2πr/2π

16 = r

r = 16

86.

What is the best estimate of 5 + 10 + 15 + 20 + 25 + 30 + 35 + 40 + 45 + 50 + 55?

350

50

150

450

600

Correct answer: 350

There are 11 numbers. If all 11 were equal to 5, the sum would be 55. Therefore, you can eliminate 50.

If all 11 were equal to 55, the sum would be 605. Therefore, you can eliminate 600.

The middle value is around 30.

*30 * 11 is approximately 350, which is the correct answer.*

87.

Solve for m if $n = -4$:

$n = 4m^2 - 10m + 2$

3/2, 1

1, 0

-3/2, 0

-1, 1

0, 4

Correct answer: 3/2, 1

1. Insert the value for n into the equation.

$-4 = 4m^2 - 10m + 2$

2. Add 4 to both sides.

$-4 + 4 = 4m^2 - 10m + 2 + 4$

$0 = 4m^2 - 10m + 6$

3. Factor.

$(2m - 3)(2m - 2) = 0$

4. Set each factor equivalent to 0 and solve for m.

$2m - 3 = 0$

$2m = 3$

$m = 3/2$

$2m - 2 = 0$

$2m = 2$

$m = 1$

88.

65 less than 2 times a number is 53. What is the number?

59

-6

28

89

236

Correct answer: 59

The algebraic equation is 2x - 65 = 53. To solve the equation, add 65 to both sides of the equation, giving you 2x = 118.

Then, divide both sides by 2 to get x = 59.

89.

What is the perimeter of a rectangle with a length of 13 and a width of 6?

38

19

78

112

136

Correct answer: 38

The perimeter of a rectangle is the sum of all its sides. To get the perimeter, just total the sides of the rectangle: 13 + 13 + 6 + 6 = 38.

90.

If 4x - 2 = 22, then what does x equal?

6

3

4

5

8

Correct answer: 6

First, add 2 to each side of the equation: 4x = 24.

Now, divide each side of the equation by 4: x = 6.

91.

If 3n - 3 > 33, which of the following must be **true**?

n > 12

n > 36

n > 24

n > 8

n < 8

Correct answer: n > 12

Add 3 to both sides of the equation: 3n > 36

Divide both sides of the equation by 3: n > 12

92.

What is the midpoint between (0, 8) and (6, -4)?

(3, 2)

(0, 0)

(-1, 3)

(4, -2)

(1, -1)

Correct answer: (3, 2)

1. Find the midpoint of the x axis.

(0 + 6)/2 = 6/2 = 3

2. Find the midpoint of the y axis.

(8 + -4)/2 = 4/2 = 2

Therefore, the midpoint is (3, 2).

93.

A 45º angle and a 135º angle are considered to be:

Supplementary

Complementary

Vertical

Right

Shared

Correct answer: Supplementary

Supplementary angles are angles that add up to 180º. Since 45º + 135º = 180º, these angles are supplementary.

Complementary angles add up to 90º. Vertical angles are formed by two intersecting lines and are opposite each other, so they always have the same measurement.
A right angle is exactly 90º.

94.

All high school students are required to enroll in a physical education class. Students may choose between summer physical education, physical strength training, or school physical education. Some of the students enrolled in summer physical education.

Which of the following must be **true**?

Not all students are enrolled in school physical education

Some students are enrolled in physical strength training

Some students are enrolled in school physical education

All students are taking summer physical education

More students are taking summer physical education than physical strength training or school physical education

---

Correct answer: Not all students are enrolled in school physical education

You are given the statement that some students are enrolled in summer physical education. Therefore, all you know is that at least one student is taking summer physical education.

You do not know whether any students at all are enrolled in physical strength training or school physical education, or how many are enrolled in each class.

In fact, it is possible that all of the students are taking summer physical education, but you cannot be certain.

"Not all students are enrolled in school physical education" is the correct answer, because you know at least one student is enrolled in summer physical education.

95.

If angle A measures 110º, what is the measure of angle B?

- **70º**
- 50º
- 60º
- 45º
- 35º

Correct answer: 70º

The image shows that angle A and angle B together equal 180º. Therefore, subtract 110º from 180º to get the measurement of angle B.

180º - 110º = 70º

96.

Roger wanted to purchase a small utility tractor. The tractor cost $12,500.00. The blade for the tractor cost $800.00. The bucket for the tractor cost $1,500. The brush guard for the tractor cost $900.00.

If Roger wanted to purchase the tractor with the blade and the bucket, how much money would Roger need?

$14,800

$14,000

$14,200

$15,700

$15,000

Correct answer: $14,800.00

In order to find the amount of money Roger would need, you will need to add together the items he wishes to buy.

$12,500.00 + $800.00 + $1,500.00 = $14,800.00