

[AB.9.N.6]

~~$\sqrt{61}$~~ ~~$\sqrt{66}$~~ ~~$\sqrt{71}$~~ ~~$\sqrt{77}$~~ $\sqrt{80}$ $\sqrt{88}$ $\sqrt{96}$ ~~$\sqrt{99}$~~

How many of the square roots shown above have a value between 8.8 and 9.9?

- 3
- 4
- 5
- 6

8.8 to 9.9
higher than 64-100
 $\sqrt{71} = 8.42$ $\sqrt{77} = 8.77$
 $\sqrt{80} = 8.94$ $\sqrt{88} = 9.38$
 $\sqrt{96} = 9.79$
 $\sqrt{99} =$

[AB.9.PR.1]

Dance students at Tracee's Dance Arts and Starz pay a yearly application fee in addition to a monthly tuition of \$35. The following table shows the total amount paid by a student at the dance school for a certain number of months.

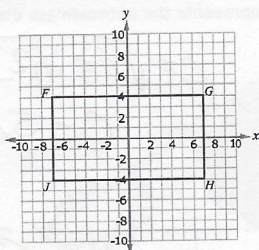
Number of Months	Total Amount Paid
2	\$90
5	\$195
9	\$335

What is the cost of the yearly application fee?

$90 = 2(35) + YF$
 $YF = 90 - 70 = 20$
again:
 $195 = 5(35) + YF$
 $YF = 195 - 175 = \$20$

This 2-D shape is rotated around its centre.

[AB.9.SS.5]



it matches 2 times.
 $\angle = \frac{360}{2} = 180$

What are the angle of rotation and the order of rotational symmetry of this 2-D shape?

- Angle of rotation: 180 degrees
Order of rotational symmetry: 1
- Angle of rotation: 180 degrees
Order of rotational symmetry: 2
- Angle of rotation: 360 degrees
Order of rotational symmetry: 1
- Angle of rotation: 360 degrees
Order of rotational symmetry: 2

[AB.9.PR.7]

Two students, Gayle and Jill, want to simplify the following expression.

$4(x^2 - 5x + 2) - (3x + 8)$
 ~~$4x^2 - 20x + 8 - 3x - 8$~~

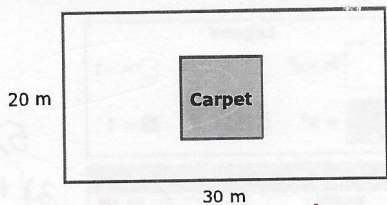
	Gayle	Jill
Step 1	$4x^2 - 20x + 12 - (3x + 8)$	$4x^2 - 20x + 8 - (3x + 8)$
Step 2	$4x^2 - 20x + 12 - 3x - 8$	$4x^2 - 20x + 8 - 3x + 8$
Step 3	$4x^2 - 23x + 4$	$4x^2 - 23x + 16$

Who made the first error when simplifying the expression shown above?

- Gayle in Step 1
- Gayle in Step 2
- Jill in Step 1
- Jill in Step 2

[AB.9.N.3]

A square carpet covers 37.5% of the floor area of a rectangular room.



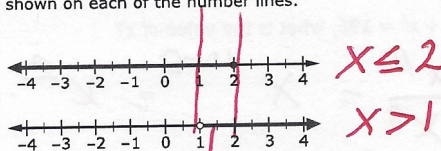
What is the side length of the carpet?

- 13 m
- 14 m
- 15 m
- 16 m

$A_{\text{Room}} = 20 \times 30 = 600$
 $600 \text{ m}^2 (0.375) = 225 \text{ m}^2$
 $225 \text{ m}^2 = A$
 $\text{side} = \sqrt{225} = 15$

[AB.9.PR.4]

An inequality is shown on each of the number lines.



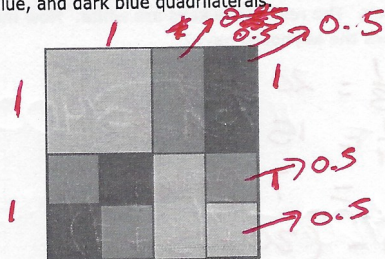
Which expression represents the values, q, that are part of both inequalities?

- $1 \leq q \leq 2$
- $1 < q \leq 2$
- $1 \leq q < 2$
- $1 < q < 2$

$1 < X \leq 2$

[AB.9.N.3]

The diagram is a square with a perimeter of 8 m. It consists of light blue, medium blue, and dark blue quadrilaterals.

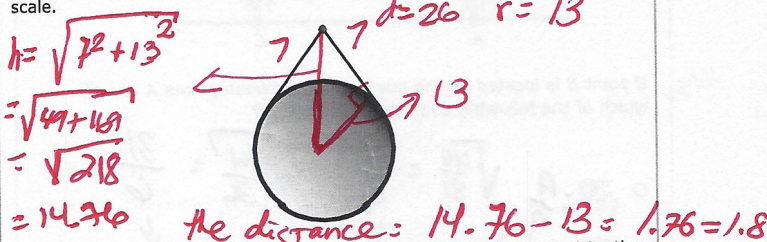


What is the total area of the medium blue rectangle and the dark blue squares?

Dark blue Squares
 $0.5 \times 0.5 = 0.25 \text{ m}^2$
 $0.5 \times 2 \times 0.25 = 0.50 \text{ m}^2$
 $TA = 0.5 + 0.5 = 1 \text{ m}^2$

[AB.9.SS.1]

A circular mirror is 26 cm in diameter and hangs by a decorative cord from a nail, as shown in the diagram below. The total length of the decorative cord is 14 cm. The lengths of cord on each side of the nail are equal to each other and form a tangent to the mirror. The diagram has not been drawn to scale.

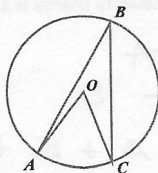


How far above the top of the circular mirror is the nail to the nearest tenth of a centimetre?

- 1.8 cm
- 4.5 cm
- 12.9 cm
- 14.8 cm

[AB.9.SS.1]

In the diagram below, the letter O represents the centre of the circle. The diagram has **not** been drawn to scale.



If the sum of $\angle AOC$ and $\angle ABC$ is 90 degrees, what is the measure of $\angle ABC$?

- 60 degrees
- 45 degrees
- 30 degrees
- 15 degrees

$\angle AOC + \angle ABC = 90^\circ$
 $\angle AOC + \frac{1}{2} \angle AOC = 90^\circ$
 $1.5 \angle AOC = 90^\circ$
 $\angle AOC = \frac{90^\circ}{1.5} = 60^\circ$

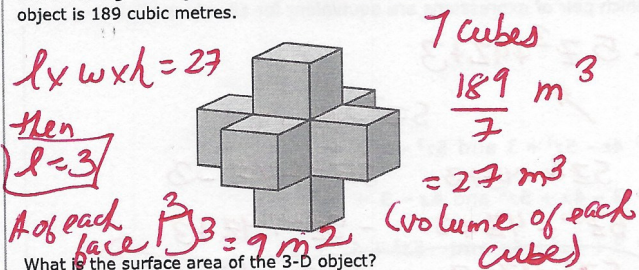
[AB.9.SPr.2]

Ricky and Fred play trumpet. They observe that 7 out of 10 of their fellow trumpet players have grey hair. Ricky concludes that of the 180 musicians in the regional symphony, 126 have grey hair. Fred believes that Ricky's conclusion cannot be supported by his observation. Which of the following statements best supports Fred's belief?

- Ricky's probability calculation is incorrect.
- Ricky did not use a proper questionnaire to obtain his data.
- Ricky came to his conclusion too quickly.
- Ricky's survey sample contains only trumpet players.

[AB.9.SS.2]

The following 3-D object is made of identical cubes. The volume of this 3-D object is 189 cubic metres.



What is the surface area of the 3-D object?

- 90 cu m
- 270 cu m
- 324 cu m
- 378 cu m

7 cubes
 189 m^3
 $\frac{189}{7} = 27 \text{ m}^3$
 (volume of each cube)
 $l \times w \times h = 27$
 then $l = 3$
 A of each face = $3 \times 3 = 9 \text{ m}^2$
 Front = Back = top = bottom
 Right = left
 $6 \text{ faces} = 6 \times 9 = 54$
 $S.A = 30 \text{ faces} \times 9 \text{ m}^2 = 270$

[AB.9.N.2]

Which expression represents the addition of 8^2 and 8^3 ?

- $(8 + 8)^2 \times 3$
- $(8 + 8)^2 + 3$
- $(8 + 8) \times (8 + 8 + 8)$
- $(8 \times 8) + (8 \times 8 \times 8)$

$8 \cdot 8$ $8 \cdot 8 \cdot 8$

[AB.9.N.2]

The expression $\left(\frac{a^5}{a^{10}}\right)(a^{12} \div a^3 \times a^4)$ can be simplified to the form a^b .
What is the value of b ?

- 23
- 21
- 15
- 8

Handwritten work:

$$\frac{(a^5)^5}{a^{10}} = a^{4 \times 5} = a^{20}$$

$$\frac{a^{20}}{a^{10}} = a^{20-10} = a^{10}$$

$$\frac{a^{12}}{a^3} = a^{12-3} = a^9$$

$$a^9 \cdot a^4 = a^{13}$$

$$(a^{10})(a^{13}) = a^{23}$$

$$\boxed{b = 23}$$

[AB.9.PR.1]

Jesse completed an 8 km bicycle ride on his first day of training for a long-distance bicycle race. He increased the length of his next training rides by 2.5 km each time. Which of the following equations could be used to determine the distance, d , that Jesse rode on each training ride, r ?

- $d = 5.5 + 2.5r$
- $d = 2.5 + 5.5r$
- $d = 8r$
- $d = 2.5r$

Handwritten table:

Day	Ride
1	8
2	10.5
3	13

Annotations: 2.5 (between 8 and 10.5), 2.5 (between 10.5 and 13)

Handwritten work:

a) $10.5 = 8.5 + 2.5(2)$
 $\boxed{10.5 = 10.5}$ ✓

b) $10.5 \neq 2.5 + 5.5(2)$ $10.5 \neq 2.5(2)$

c) $10.5 \neq 8(2)$ d) $d = 2.5$

[AB.9.PR.1]

The relationship between two variables is given in the following equation.

$40 + 23d = T$
 ↳ constant (Fixed fee)

Which of the following situations could be represented by this equation?

- The price of each main dish at a restaurant is \$40, and the price of each dessert is \$23.
- A gymnastics school charges students \$40 per class taken plus a \$23 administration fee.
- The plumber charges \$40 per hour plus a \$23 service fee.
- The cost to rent a room at the recreation centre is a \$40 administration fee plus \$23 per hour.

[AB.9.PR.3]

What is the value of x in the equation?

$\frac{x}{4} + 2 = 34$

Handwritten work:

$\frac{x}{4}$ has to be 32. or x is a number that divided by 4 gives you 32. $32 \times 4 = 128 = x$

$\boxed{128}$

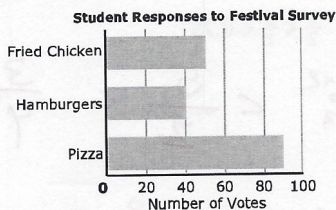
Handwritten work:

$$\frac{x}{4} = 34 - 2 \quad (\frac{x}{4} = 32) \quad (4)$$

$\boxed{x = 128}$

[AB.9.Spr.1]

The student advisory committee surveyed 180 out of 360 male students to determine which foods should be served at the school festival. The results of the survey are shown below.

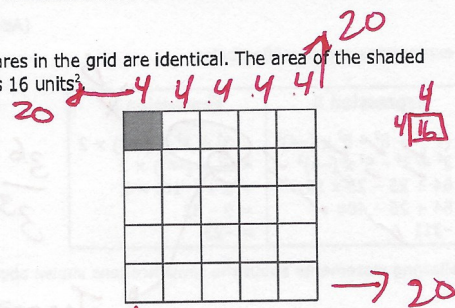


What potential bias exists in the data collection for this survey?

- The survey took too long to complete. ?
- The students' cultural beliefs were not taken into account.
- The sample does not represent the population. What about the girls?
- The survey question is confusing.

[AB.9.N.5]

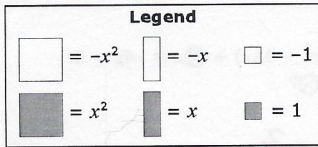
The squares in the grid are identical. The area of the shaded square is 16 units².



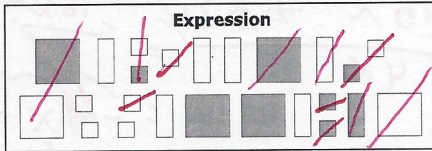
What is the perimeter of the grid?

$\boxed{80}$ units

Make zero pairs



[AB.9.PR.6]



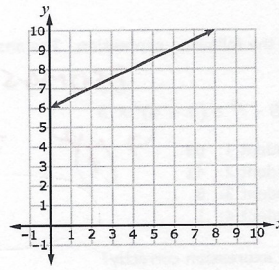
Which of the following could be added to the expression shown above to result in a sum that contains only a constant term?

- $2x^2 - 5x + 14$
- $2x^2 - 7x + 3$

$-2x^2 + 7x - 3$

$-2x^2 + 5x - 9$

$2x^2 - 5x - 3$
 ~~$2x^2 - 5x - 3$~~
 ~~$-2x^2 + 5x - 9$~~
 $-2x^2 + 5x - 9$



[AB.9.PR.2]

Where will the line $y = 3 + 2x$ intersect the line shown on the graph above?

- (8, 10)
- (4, 8)
- (2, 7)
- (0, 6)

$y = 3 + 2(8) = 19 \neq 10$
 $y = 3 + 2(4) = 11 \neq 8$
 $y = 3 + 2(2) = 7$
 $y = 3 + 2(0) = 3 \neq 6$

[AB.9.PR.3]

What is the value of x in the following equation?

$3(x + 4) - 15 = 54$

$3x + 12 - 15 = 54$

$3x - 3 = 54$

$3x = 54 + 3$

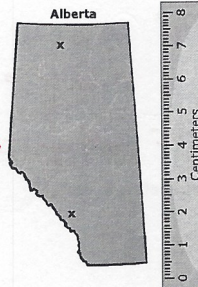
$3x = 57$

$x = 57/3$

- 19
- 29
- 62
- 121

[AB.9.SS.4]

The map below shows two different lakes in Alberta. Each lake is shown by an x . The two lakes are 1 000 km apart.



Which ratio represents the scale used to create the map?

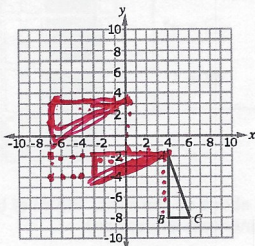
- 1 cm : 20 km
- 1 cm : 200 km
- 1 cm : 2 000 km
- 1 cm : 20 000 km

This would need to be 50 cm

This would be 1 cm = 500 km makes sense

[AB.9.SS.5]

Triangle ABC undergoes two different transformations.
 Transformation 1: A 90-degree clockwise rotation about vertex A
 Transformation 2: A translation 4 units left and 5 units up

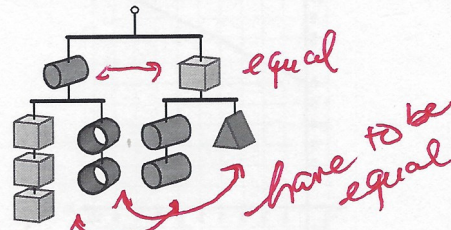


Which answer represents the ordered pair for each vertex after both transformations have been completed?

- $A''(4, -2); B''(-2, -2); C''(-2, -4)$
- $A''(8, 3); B''(2, 3); C''(2, -4)$
- $A''(0, 3); B''(-6, 3); C''(-6, 1)$

The following diagram represents a balanced mobile.

[AB.9.PR.3]



Which of the following equations correctly represents the relationship between some of the objects shown in the diagram above?

- $\triangle = \text{cylinder} + \text{cylinder}$
- $\triangle = \text{cube} + \text{cube}$
- $\text{cube} = \text{cylinder} + \text{cylinder}$
- $\text{cylinder} = \text{cube} + \text{cube}$

equal
have to be equal

[AB.9.SPr.1]

Conner conducts a survey to determine the demand for an animal shelter in his community. Conner can best minimize the bias in his survey by collecting data from what sort of people?

- People who live in different communities
- People who have pets
- People who do not have pets
- People who are different ages

[AB.9.PR.3]

Zoe wants to buy a new computer that costs \$400, including GST. She already has \$71 she plans to use towards buying the computer. Zoe earns \$11.75/hour at her part-time job. What is the minimum number of hours that Zoe must work in order to save enough money to buy the computer?

$$71 + 11.75h = 400$$

$$400 - 71 = 11.75h$$

$$\frac{329}{11.75} = h$$

28h

28

 hours