Math 6 Summer Packet 2024

Created By Faranot Louis

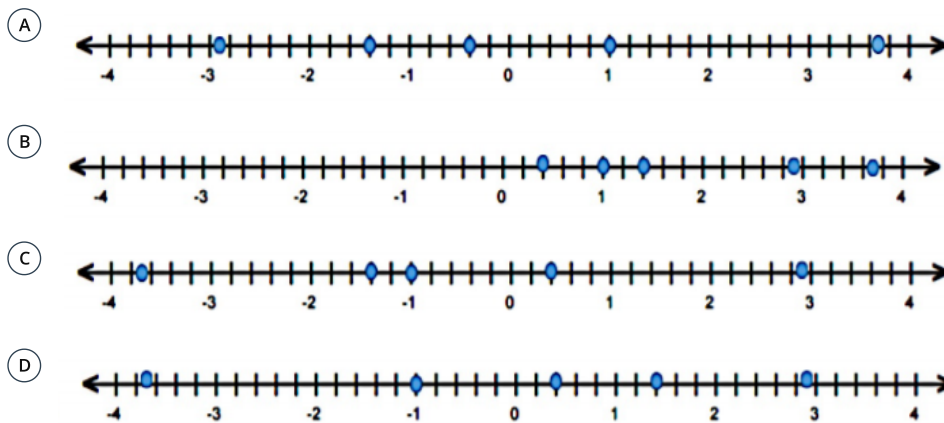**1** Which choice correctly shows the prime factorization of 36?

(A) $2 \times 2 \times 2 \times 3$

(B) $2 \times 2 \times 3 \times 3$

(C) $2 \times 3 \times 3 \times 3$

(D) $1 \times 2 \times 2 \times 3$

---

2 Sasha has to place the following numbers in numerical order on a number line.

$$-3.7, \ \frac{3}{8}, \ -1, \ 1\frac{2}{5}, \ 2.9$$

Which number line correctly displays each number?
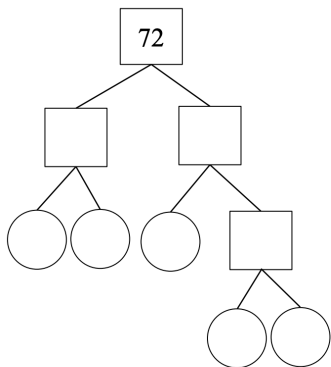
(A)

(B)

(C)

(D)

---

3 Mr. Gonzales showed students part of the prime factorization of 90. One factor is missing.

$$2 \cdot 3^2 \cdot \underline{\ \ }$$

What number completes this prime factorization?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

4

What is the **PRIME** factorization of 72?

(A) 2,2,3,3

(B) 2,2,3,3,4

(C) 2,2,2,3,3

(D) 2,2,2,3,3,9

---

5 An expression is shown.

$$12 \cdot 12 \cdot 12 \cdot 12 + 7\left(3 \cdot 3 \cdot 3 \cdot 3 + 3\right)$$

Which of the following shows this expression written using exponents?

(A) $4^{12} + 7\left(5^3\right)$

(B) $4^{12} + 7\left(4^3 + 3\right)$

(C) $12^4 + 7\left(3^5\right)$

(D) $12^4 + 7\left(3^4 + 3\right)$

---

6   GCF for 35 and 63

---

7   For 5^4 answer the following:

What is the base?

What is the exponent?

What is the expanded form?

What is the value (or product)?

8 GCF for 12 and 42

---

9 What is the sum of $|-10|$ and $|6|$?

(A) -16

(B) 16

(C) -4

(D) 4

---

10 Write an expression, using an exponent, equivalent to $5 \times 5 \times 5 \times 5$.

Enter your expression in the space provided

---

11 All numbers, including fractions and decimals, below 0 are negative integers.

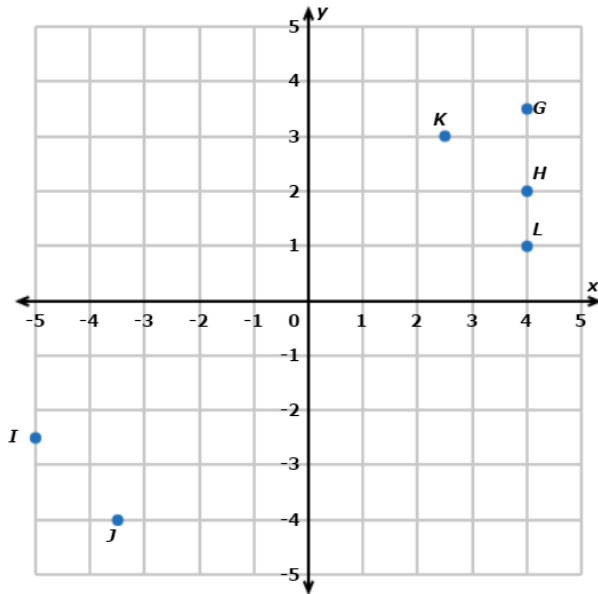(A) True

(B) False

---

12 Place the decimal point in the quotient to make the given division sentence true.
$29.4 \div 0.4 = 735$

---

13 Complete the following expression, write your answer as a decimal.
$$\frac{1}{2} \div \frac{5}{6} =$$

14 What are the coordinates of points K and L ? Write your coordinates as whole numbers or decimals, rounded to the nearest **0.5**

K([_____] , [_____])

L([_____] , [_____])

---

15 Part A

(a) Last month, Kira spent 15 hours watching T.V. and 12 hours reading. During the same month, Charlie spent 20 hours watching T.V. and 16 hours reading. Who had a higher ratio of time spent watching T.V. to time spent reading?

(A) Kira

(B) Charlie

(C) Neither; the ratios are equivalent

(b)

Part B

Consider the following table of equivalent ratios. Find the pattern and write your result in the empty box.

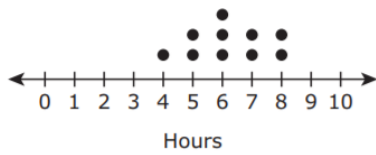| 5	6
[ ]	12
15	18
20	24
25	30

Answer: [_____]

16 A student asks 10 classmates how many hours they each spent reading last week. The student creates this chart to show the responses.

Hours Spent Reading
7, 6, 5, 8, 5, 4, 7, 5, 6, 8

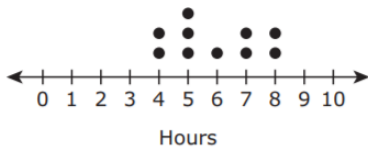Which dot plot shows the number of hours the classmates spent reading last week?
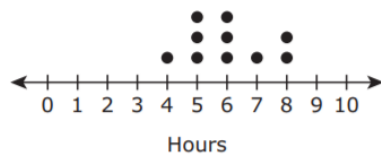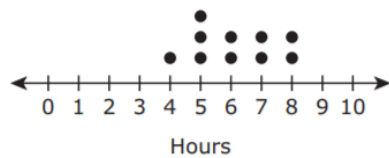
(A) **Hours Spent Reading**

0 1 2 3 4 5 6 7 8 9 10
Hours

(B) **Hours Spent Reading**

0 1 2 3 4 5 6 7 8 9 10
Hours

(C) **Hours Spent Reading**

0 1 2 3 4 5 6 7 8 9 10
Hours

(D) **Hours Spent Reading**

0 1 2 3 4 5 6 7 8 9 10
Hours

---

17 Which **two** statements about rounding decimals are correct?

A The number 5.066 rounded to the nearest hundredth is 5.07.

B The number 5.074 rounded to the nearest hundredth is 5.08.

C The number 5.117 rounded to the nearest hundredth is 5.10.

D The number 5.108 rounded to the nearest hundredth is 5.11.

E The number 5.025 rounded to the nearest hundredth is 5.02.

18 Three decimal numbers are listed.

$0.504, 3.057, 28.06$

Which statements about these decimals are true? Select the **three** true statements.

A The word form of 0.504 is five and four thousandths.

B The word form of 28.06 is twenty-eight and six hundredths.

C The expanded form of 0.504 is $\left(5 \times \dfrac{1}{10}\right) + \left(4 \times \dfrac{1}{1000}\right)$.

D The expanded form of 3.057 is $3 \times 1 + \left(5 \times \dfrac{1}{10}\right) + \left(7 \times \dfrac{1}{100}\right)$.

E The expanded form of 28.06 is $2 \times 10 + 8 \times 1 + 6 \times \dfrac{1}{100}$.

---

19 NF.7 COMPARE DECIMALS

Complete each statement using $>$, $=$, or $<$ to compare each pair of decimal numbers.

0.07 **a** 0.7 4.3 **b** 4.30
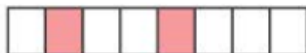
6.42 **c** 6.8 0.98 **d** 0.89

a
- ○ <
- ○ >
- ○ =

b
- ○ <
- ○ >
- ○ =

c
- ○ <
- ○ >
- ○ =

d
- ○ <
- ○ >
- ○ =

---

20 Ellie shades parts of a fraction bar to represent a fraction.

Which represents the same fraction?

A

B

C

D

21 Isabel used $\frac{2}{3}$ cup of strawberries in a fruit salad. She used less than $\frac{2}{3}$ cup of blueberries in the same salad. Which of the following could be the fraction of a cup of blueberries that Isabel used?

Select the **three** fractions that could represent the fraction of a cup of blueberries.

- A $\frac{1}{2}$
- B $\frac{1}{4}$
- C $\frac{4}{5}$
- D $\frac{5}{6}$
- E $\frac{3}{8}$

---

22 Add the following fraction given in the first column and choose the appropriate result provided below.

Note : Do not simplify the fraction.

Fraction	$\frac{11}{10}$	$\frac{16}{8}$	$\frac{13}{9}$
$\frac{5}{8} + \frac{1}{2} + \frac{7}{8}$	○	○	○
$\frac{1}{10} + \frac{3}{5} + \frac{2}{5}$	○	○	○
$\frac{2}{3} + \frac{1}{9} + \frac{2}{3}$	○	○	○

---

23 Mia placed point P on the number line.

- Give the value of the number P as a fraction.
- What does the denominator of your fraction represent on the number line?
- What does the numerator of your fraction represent on the number line?

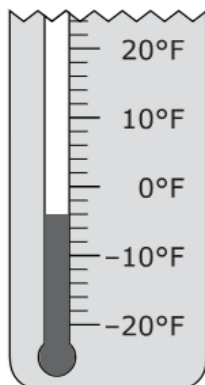Enter your answer and your explanation in the box provided.

---

24 Express your answer as a simplified mixed number. $8\frac{4}{7} - 3\frac{2}{7} = $ [   ]

---

25 Add the two numbers.

Write your answer as a whole number, a fraction or a mixed number.

$6\frac{7}{8} + \frac{3}{2} = $ [   ]

26 The picture shows part of a thermometer measuring temperature in degrees Fahrenheit.

20°F
10°F
0°F
−10°F
−20°F

What is the temperature, in degrees Fahrenheit, shown on the thermometer to the nearest integer?
Enter your integer answer in the box.

---

27 a. Determine whether each situation should be represented by a positive integer or a negative integer.
   i. A deposit of $400   [a ⌄]
   ii. A temperature decrease of $32°F$ [b ⌄]
   iii. A withdrawal of $65   [c ⌄]
   iv. $3,000$ feet above sea level   [d ⌄]
   v. A credit of $55   [e ⌄]

b. In the boxes, enter an integer that represents each situation.
   i. A deposit of $400   [   ]
   ii. A temperature decrease of $32°F$ [   ]
   iii. A withdrawal of $65   [   ]
   iv. $3,000$ feet above sea level   [   ]
   v. A credit of $55   [   ]

a
○ Positive integer
○ Negative integer

b
○ Positive integer
○ Negative integer

c
○ Positive integer
○ Negative integer

d
○ Positive integer
○ Negative integer

e
○ Positive integer
○ Negative integer

---

28 Order the following integers from least to greatest:
$-41, -51, -38, \ 50, \ 41$ and 13

(A) $-51, -41, -38, \ 41, \ 13$ and 50

(B) $-38, -41, -51, \ 50, \ 41$ and 13

(C) $-51, -38 , -41, \ 13, \ 41$ and 50

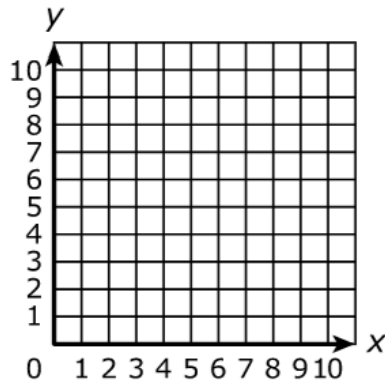(D) $-51, -41, -38, \ 13, \ 41$ and 50

29 Write the absolute value and opposite integer in the blank for each number given in the first column.

Numbers	Absolute Value	Opposite Integer
0	[1]	[2]
9.5	[3]	[4]
-29	29	29
-7	[5]	[6]

---

30 A coordinate plane is shown.

Which of these is a correct process for plotting the point $(3, 6)$ on the coordinate plane?

Ⓐ Start at the origin. Move 3 units up the y-axis, and then move 6 units to the right. Plot the point there.

Ⓑ Start at the top of the y-axis. Move 3 units down the y-axis, and then move 6 units to the right. Plot the point there.

Ⓒ Start at the origin. Move 3 units to the right on the x-axis, and then move 6 units up. Plot the point there.

Ⓓ Start at the top of the y-axis. Move 3 units to the right, and then move 6 units down. Plot the point there.

31 Plot the points on the coordinate plane.

$(2, 1)$, $(4, 3)$, $(1, -1)$, $(-5, 3)$, $(2, -2)$ and $(-3, -2)$

CLICK TO SELECT

- POINT A
- POINT B
- POINT C
- POINT D
- POINT E
- POINT F
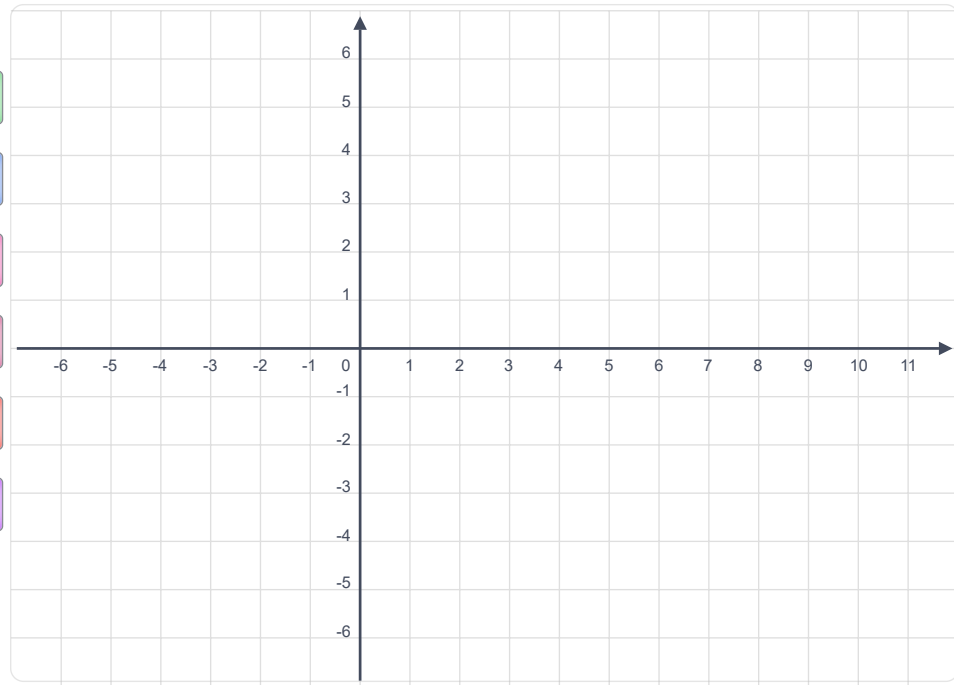
32 What is the slope of the line through $(-2, 1)$ and $(2, -5)$ in the standard (x, y) coordinate plane?

(A) $\dfrac{3}{2}$

(B) 1

(C) -1

(D) $-\dfrac{3}{2}$

(E) -4

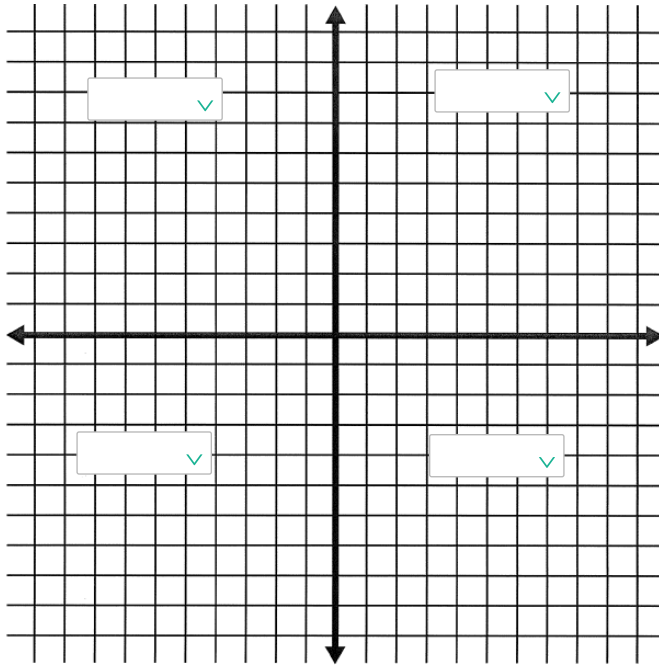**33** Find the slope of the line that passes through $(10, 8)$ and $(1, 9)$.

Slope =

34 Find the slope of the line that passes through $(0, 10)$ and $(5, 15)$.

Slope =

35 **Review**

Label the quadrants on the map.

a
- ○ Quadrant 1
- ○ Quadrant 2
- ○ Quadrant 3
- ○ Quadrant 4

b
- ○ Quadrant 1
- ○ Quadrant 2
- ○ Quadrant 3
- ○ Quadrant 4

c
- ○ Quadrant 1
- ○ Quadrant 2
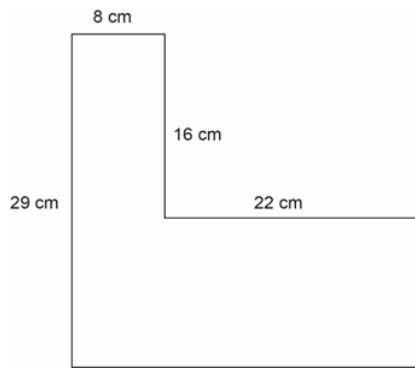- ○ Quadrant 3
- ○ Quadrant 4

d
- ○ Quadrant 1
- ○ Quadrant 2
- ○ Quadrant 3
- ○ Quadrant 4

36 The points $(3, 9)$ and $(-3, -9)$ lie in which quadrants?

(A) Quadrant I and II

(B) Quadrant I and III
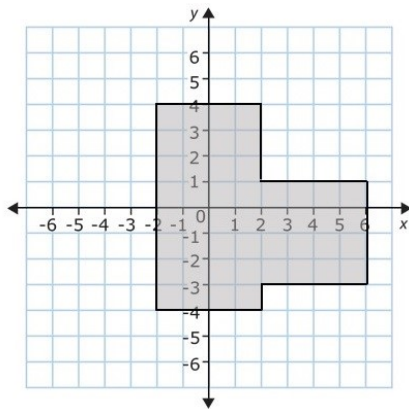
(C) Quadrant II and III

(D) Quadrant III and IV

37

8 cm

16 cm

29 cm   22 cm

Find the area and perimeter of the composite figure shown.

Area:

Perimeter:

---

38   Consider the figure shown. Note that each square unit is 1 unit in length.

What are the area and perimeter of the figure?

The area is [   ] a ∨ .

The perimeter is [   ] b ∨ .

a
○ units
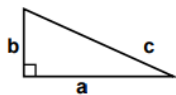○ square units

b
○ units
○ square units

---

39   Calculate the area and perimeter of the following shape: (round to two decimal places)

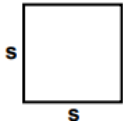b   c
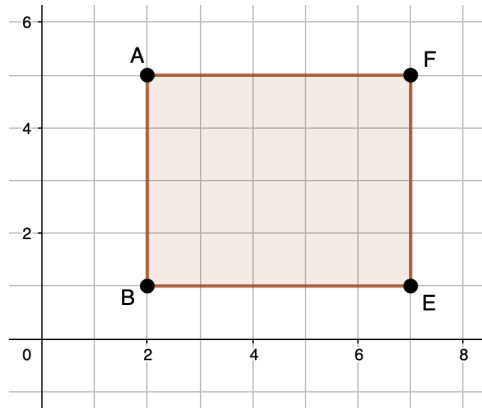
a

$a = 89$
$b = 40$
$c = 97.58$

Area:

Perimeter:

40 Calculate the area and perimeter of the following shape: (round to two decimal places)

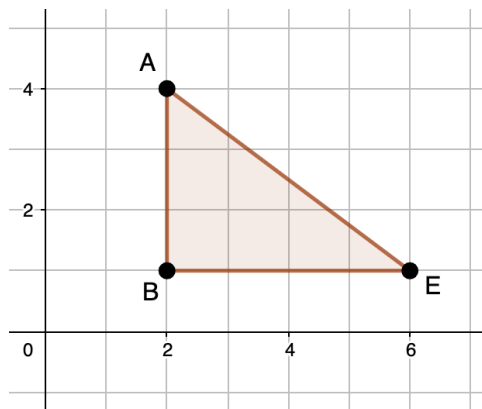

$s = 53$

Area: [ ]
Perimeter: [ ]

---

41 Find the area and perimeter of the polygon $ABEF$.

Area = [ ]
Perimeter = [ ]

---

42 Find the area and perimeter of the triangle ABE .

Area = [ ]
Perimeter = [ ]

43

Write the following expression using exponents:

$5 \times 5 \times d \times 5 \times d \times 5 \times d$

Part A
The exponent for 5 is

a	∨

Part B
The exponent for d is

b	∨

a

- ◯ 0
- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6
- ◯ 7

b

- ◯ 0
- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6
- ◯ 7

44

Learning Target: I can generate equivalent expressions using the properties of exponents. (1 point)

Find the missing exponent. $\dfrac{5^{11}}{5^{?}} = 5^{4}$ Exponent only in the answer box

---

45

What exponent will make this equation true?

$10^{?} = 1,000$

Enter your answer in the box.

[ ]

46

Find the missing exponent. $2^{3} \cdot 2^{?} = 2^{10}$ Exponent only in the box

47   Write **13,800,000,000** in scientific notation.

[ ]

---

48   What is $411,600,000$ in scientific notation.

$$\times\ 10^8$$

a

- ⭘ 41.16
- ⭘ 4.116
- ⭘ 411.6
- ⭘ 0.4116

---

49   Write **9,460,000,000,000,000** in scientific notation.

[ ]

---

50   Write the following quotient in scientific notation: $\left(\dfrac{33\ \times\ 10^9}{11\ \times\ 10^7}\right)$.

[ ]

---

51   In scientific notation, $8,599,000,000 = 8.599 \times 10^x$. What is the value of x?

a

- ⭘ 9
- ⭘ 8
- ⭘ 7
- ⭘ 10

---

52   A mosquito has a mass of about 0.00000225 kilograms. Which of these is the measure of the mass in scientific notation?

- Ⓐ 225.00×10^{-8} kilograms
- Ⓑ 2.25×10^{-6} kilograms
- Ⓒ 2.25×10^{-5} kilograms
- Ⓓ 22.5×10^{-7} kilograms

---

53   **Solve using order of operations**

$$9^2 + 3 \cdot (9 - 5)^2 \div 4$$

[ ]

54 **Solve using order of operations**

$$5^2 + (3^2 - 4) + 9^2 (7 \cdot 3)$$

[ ]

---

55 Use the order of operations to simplify.

$$\sqrt{16} + 5 - \sqrt{121}$$

---

56 Use the order of operations to simplify.

$$\frac{2(-6 + 2)}{4} = $$ [ ]

---

57 Use the order of operations to simplify. $\quad -2 + 3 \cdot (-17 - 2) - 29 = $ [ ]

---

58 Find the GCF and LCM of 4 and 6.

$GCF = $ [ ] $LCM = $ [ ]

---

59 Find the GCF and LCM of 10 and 12.

GCF = [ ] LCM = [ ]

---

60 Solve the following proportion for x

$$\frac{2}{3} = \frac{x}{750}$$

(A) 500

(B) 750

---

61 Use the drawing to create the ratio.

What is the ratio of cups to saucers? [ ]

62 Tell whether the ratios form a proportion.

$$\frac{6}{11}, \frac{30}{55}$$

(A) yes

(B) no

---

63 Part A

(a) Is there a proportion between these two ratios?
Ratio 1 - 4 amateurs : 20 professionals
Ratio 2 - 3 amateurs : 15 professionals

(A) Yes

(B) No

(b)

Part B

Find the ratio of the number of professionals in Ratio 1 to the number of professionals in Ratio 2.

Answer:

Note: Type the answer as shown. Ex:(4:10)

---

64 Which equation is equivalent to the given proportion?

(a) Given: $\dfrac{3}{5} = \dfrac{12}{n}$

A	$5n = 36$
B	$15 = 12n$
C	$3n = 17$
D	$3n = 60$

(b) Solve the PROPORTION and fill-in the value for n.

---

65 What is the missing value in the table?

Input	Output
18	
12	4
30	10
24	8
9	3

66 Write the ratio $\dfrac{\frac{2}{3}}{5}$ in simplest form.

(A) $\dfrac{2}{15}$

(B) $\dfrac{15}{2}$

(C) $\dfrac{10}{3}$

(D) $\dfrac{3}{10}$

---

67 Which table shows the correct conversions for pounds and ounces?

(A)

Pounds	Ounces
1	16
2	17
3	18

(B)

Pounds	Ounces
1	10
2	20
3	30

(C)

Pounds	Ounces
2	18
4	20
6	22

(D)

Pounds	Ounces
2	32
4	64
6	96

---

68 Use the drop down to chose the correct conversion of units.
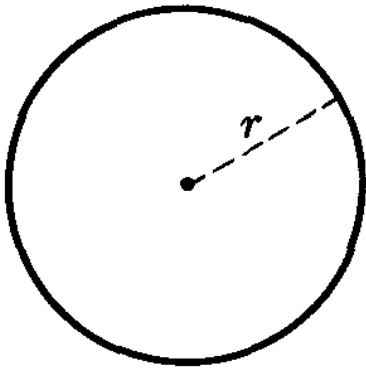
10 quarts = _____ gallons.

a
- ○ 2
- ○ 2.5
- ○ 25
- ○ 10
- ○ Enter Value

69 Use the picture of the circle to choose the correct **_area_** formula(s).
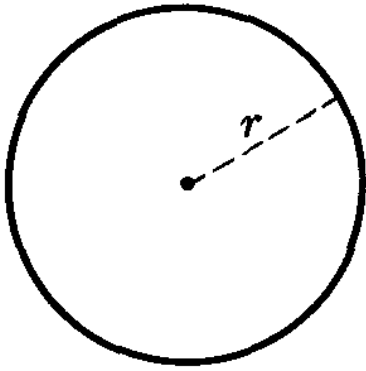
A   A = LW

B $A = \pi r^2$

C $A = \frac{1}{2} bh$

D $A = s^2$

---

70 Using the picture below, identify the formula for the **circumference** (perimeter) of the circle.
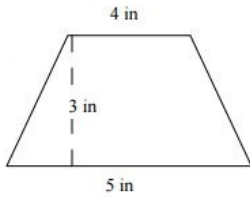

A   P = a + b + c

B   P = 2L + 2W

C $P = s_1 + s_2 + s_3$

D   P = 2πr

E   P = L + W + L + W

F   P = 4s

---

71 The circumference of a circle is 18.84 inches.
What is the diameter of the circle, to the nearest inch?

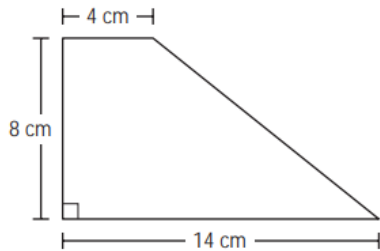**72** Suppose the circumference of a circle is 24π. What is the radius of the circle?

(A) 9

(B) 7

(C) 12

(D) 13

---

73 Find the area of the trapezoid shown below and choose the appropriate result.

(A) 13 in^2

(B) 13.5 in^2

(C) 15 in^2

(D) 27 in^2

---

74 The diagram below shows a trapezoid and some of its dimensions.
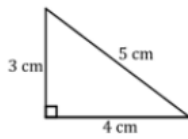

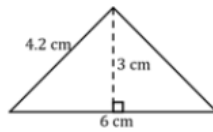
What is the area, in square centimeters, of the trapezoid?

(A) 56

(B) 72

(C) 112

(D) 144

Find the area of each triangle, and order them from least to greatest.

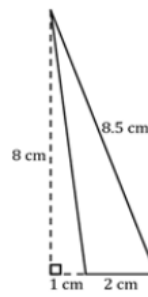**Triangle 1**

5 cm
3 cm
4 cm

Triangle 2

4.2 cm
3 cm
6 cm

Triangle 3

8.5 cm
8 cm
1 cm   2 cm

The area of Triangle 1 is [　　　] cm².

The area of Triangle 2 is [　　　] cm².

The area of Triangle 3 is [　　　] cm².

Order the triangles by area, from least to greatest.

Least   [a ⌄] , [b ⌄] , [c ⌄]   Greatest

a
- ○ Triangle 1
- ○ Triangle 2
- ○ Triangle 3

b
- ○ Triangle 1
- ○ Triangle 2
- ○ Triangle 3

c
- ○ Triangle 1
- ○ Triangle 2
- ○ Triangle 3