Math 7 Summer Packet 2024

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1 Use the order of operations to simplify.

$$\sqrt{1} + \sqrt{81} + 3^2$$

(A) 19

(B) 14

(C) 17

(D) 15.5

---

2 Select **all** tables that represent a proportional relationship between x and y.

A

x	0	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{5}$
y	0	$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$

B

x	0	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$
y	0	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$

C

x	0	1	3	5
y	0	1	9	25

D

x	0	1	3	4
y	0	5	15	20

---

3 Select all tables that represent a proportional relationship.

A

Number of Peaches	Cost (dollars)
3	3.75
7	8.75
11	13.75

B

Number of Hours	Cost (dollars)
2	100
4	150
6	200

C

Number of Hours	Earnings (dollars)
6	54
8	72
11	114

D

Number of Rides	Number of Tickets
8	32
3	12
15	60

E

Number of Gallons	Cost (dollars)
5	12.50
8	20.00

10	25.00

---

4 Find the selling price after applying the discount or markup. **(type in "money form").**

Original: $66.50
Discount: 40%

$ [_____]

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5 A refrigerator is priced at $525.50. There is a 6% sales tax rate. What is the sales tax for the refrigerator in dollars and cents?

[_____]

---

6 The formula to find the amount of interest on an amount of money over time is interest = (principal)(rate)(time), or $I = PRT$. Solve to find R.

$R =$
[_____]

---

7 Determine the simple interest if the principal amount is $20000, the rate of interest is 5% per annum, and the time is 5 years. Choose the correct option.

(A) $4000

(B) $5000

(C) $5500

(D) $6000

---

8 A salesman sold a refrigerator for $175 and earned 20% commission. What amount of money(in $) did they get as the commission?

[_____]

---

9 Solve using Order of Operations (PEMDAS).

$2^3 + 7 \times 4$

- (A) 36
- (B) 52
- (C) 100
- (D) 45

---

10 Follow the Order of Operations to simplify each expression below.

A. $6^2 - (5 - 4) + 2(8 - 2^2) \div 8$

B. $\frac{2(9-6)^2}{18}$

A. [   ]

B. [   ]

---

11 **Solve using order of operations**

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

[   ]

---

12 Use the order of operations to simplify.

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

---

13 **Solve using order of operations**

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

[   ]

---

14 A new phone costs $450. There is a 40% discount on the price of the phone and an 8% sales tax on the discount price. What is the final cost of the phone after the discount and the sales tax?

[   ]

15 Solve the following problem using the Order of Operations:

$(2 + 6) \cdot (0.3)^2 + 3 =$

- (A) 3.72
- (B) 24.72
- (C) 75
- (D) 96

---

16 **What is the correct order of operations?**

- (A) Multiplication and division, addition and subtraction, parentheses, and exponents.
- (B) Parentheses, exponents, addition and subtraction, multiplication, and division.
- (C) Parentheses, exponents, multiplication and division, addition, and subtraction.
- (D) Addition and subtraction, multiplication and division, exponents, and parentheses.

---

17 Choose all sets of real numbers each belongs to.

	Real	Rational	Irrational	Integer	Whole	Natural
$-\dfrac{1}{3}$	☐	☐	☐	☐	☐	☐
$\sqrt{2}$	☐	☐	☐	☐	☐	☐
-4	☐	☐	☐	☐	☐	☐
$\sqrt{25}$	☐	☐	☐	☐	☐	☐
$64^{\frac{1}{2}}$	☐	☐	☐	☐	☐	☐

18 Following are the properties of some special quadrilaterals. Tick the correct shape which possesses such properties.

Properties	Rectangle	Rhombus	Square	Trapezoid
All sides are congruent.	☐	☐	☐	☐
Both pair of opposite sides are congruent.	☐	☐	☐	☐
Both pair of opposite sides are parallel.	☐	☐	☐	☐
All angles are congruent.	☐	☐	☐	☐
Exactly one pair of opposite sides are parallel.	☐	☐	☐	☐

19 Jack wrote the number 4325000 in scientific notation. Choose the appropriate number.

(A) 4.325×10^6

(B) 4.325×10^{-6}

(C) 4.325×10^3

(D) 43.25×10^4

20 Select all the sets to which the number belongs.

		Natural	Whole	Integer	Rational	Irrational	Real
A	2	☐	☐	☐	☐	☐	☐
B	π	☐	☐	☐	☐	☐	☐
C	$\sqrt{4} - 2$	☐	☐	☐	☐	☐	☐
D	$12 \div -3$	☐	☐	☐	☐	☐	☐
E	$\dfrac{\pi}{\pi}$	☐	☐	☐	☐	☐	☐
F	$(-3)^2$	☐	☐	☐	☐	☐	☐
G	$(-1)^3$	☐	☐	☐	☐	☐	☐
H	$\dfrac{3}{5}$	☐	☐	☐	☐	☐	☐
I	$\dfrac{3}{5} \cdot \dfrac{-5}{3}$	☐	☐	☐	☐	☐	☐
J	$\sqrt{5}$	☐	☐	☐	☐	☐	☐

21 Select the set or sets of numbers that the real number -62 belongs.

A Rational

B Integer

C Whole

D Natural

E Irrational

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22 Find the area and perimeter of the given rectangle.
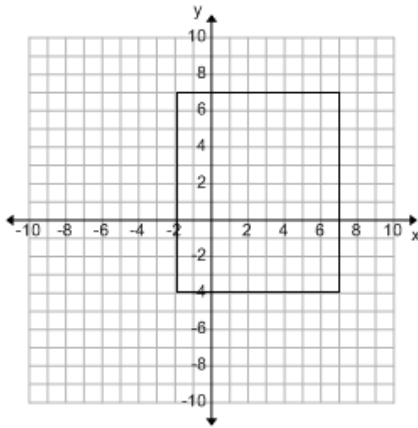
Area: | 1 | square units

Perimeter: | 2 | units

---

23 Find the area and perimeter of the composite figure shown below.

$3x$

$3x + 2$

$3x$

x

A =

P =

24

8 cm

16 cm

29 cm   22 cm
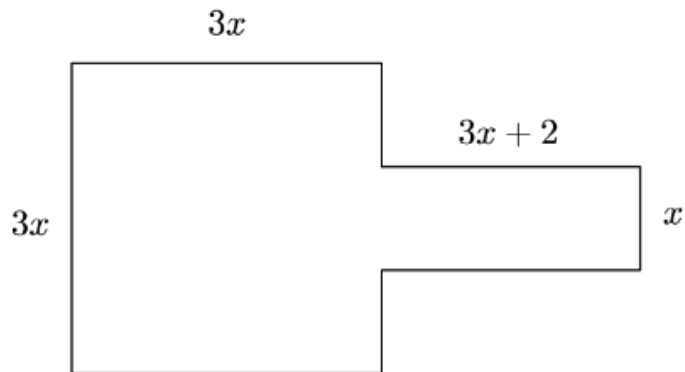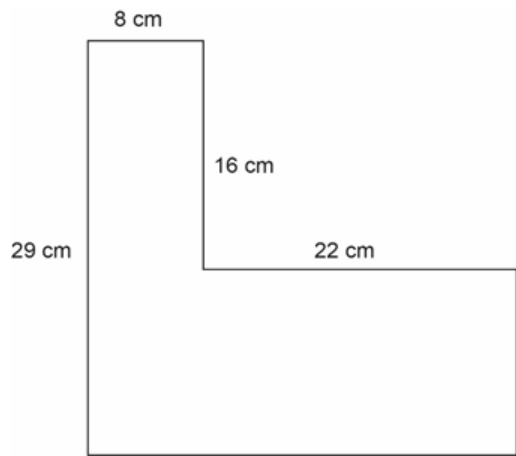
Find the area and perimeter of the composite figure shown.

Area:

Perimeter:

25

Calculate the area and perimeter of the following shape: (round to one decimal place)

19 yd

11 yd

9 yd

10 yd

Area:

Perimeter:

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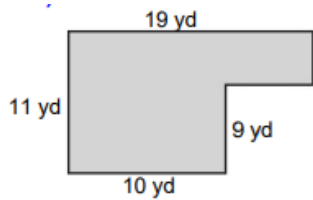
26 Which algebraic expressions could represent the phrase "nine more than the product of five times the number of tires t"? Select all that apply.

A $9 + 5t$

B $5 \cdot t + 9$

C $(9 + 5)\,t$

D $(5 \times t) + 9$

E $5 + 9t$

27 A sno-cone machine priced at $139 is on sale for 20% off. The sales tax rate is 6.75%. What is the price of the sno-cone machine after the discount and sales tax?

(A) $111.20

(B) $118.71

(C) $29.68

(D) none of the above

---

28 Find the difference of the following algebraic expressions.

$(8x^3 - 13x + 2) - (6x^3 - 15x + 3)$

(A) $2x^3 - 28x - 1$

(B) $2x^3 + 2x - 1$

---

29 Find the sum of the following algebraic expressions.

$(4x^2 + 4x - 12) + (7x^2 - 8x + 13)$

(A) $11x^2 + 12x + 1$

(B) $11x^2 - 4x + 1$

---

30 Identify the different parts or components Algebraic Expressions

$$3x + 5y - 9$$

Variables : _____   Terms : _____

_____

Numerical Coefficients   _____

_____   Operations :

_____   _____

Constant : _____   _____

31 Which algebraic expressions are equivalent to 2+1+Y+Y+Y? (Hint there may be more than one)

A 3+3Y

B 21+3Y

C $3+y^3$

D 3Y+3

---

32 Evaluate the following algebraic expressions when

x = -2 , y = -3 , z = 4

Write the value of the expressions in the boxes

a) 2x + 3y

b) 2(y - z)

c) $\dfrac{6x}{2y}$

This questions means you need to divide the top by the value of 2y

---

33 Evaluate the following algebraic expressions.
A. Find the value of 7m + 9 for m = 2.

B. Find the value of a b for a = 10 and b = 4.

34 Consider the rectangle shown below, with algebraic expressions representing its side length.

$$x^2 - 4$$

$3x$ $\qquad$ $3x$

$$x^2 - 4$$
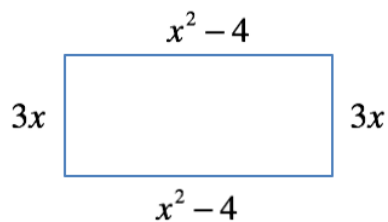
What is the **perimeter** of the rectangle?
Type a simplified algebraic expression into the box.

---

35 Order the following integers from least to greatest:
$-25, \ -41, \ 36, \ -38, \ 28$ and 16

- (A) $-41, -38, -25, \ 28, \ 16$ and 36

- (B) $16, \ 28, \ 36, -25, -38$ and -41

- (C) $-41, -38, -25, \ 16, \ 28$ and 36

- (D) $-41, -25, -38, \ 16, \ 28$ and 36

---

36 Use the order of operations to simplify.
$4 \times 5 - 10 - 2(1 - 2) + 5 =$

- (A) 5

- (B) 9

- (C) 11

- (D) 17

37

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

---

38 The value of y when solving the equation $2\left(y - 6\right) + 3 = 4y - 7$ is:

(A) -1

(B) 2

(C) 8

(D) 1

39 What is the best first step in solving the equation below.
$3x - 5 = 7x + 11$

(A) Add 11 to both sides

(B) Divide by 7x on both sides

(C) Subtract 3x on both sides

(D) Add 3x to both sides

---

40 The value of z when solving the equation $z + 3(z + 7) = -5$ is:

(A) 13

(B) $\dfrac{13}{2}$

(C) -13

(D) $\dfrac{-13}{2}$

---

41 An equation is shown.
$$3x + \frac{4}{5} = 7 - 2x$$
What is the solution to the equation?
$x = $ [   ]

---

42 The value of y when solving the equation $2(y - 6) + 3 = 4y - 7$ is:

(A) -1

(B) 2

(C) 8

(D) 1

43 Graphing Inequalities on a Number Line:
Graph $x \geq -2$.

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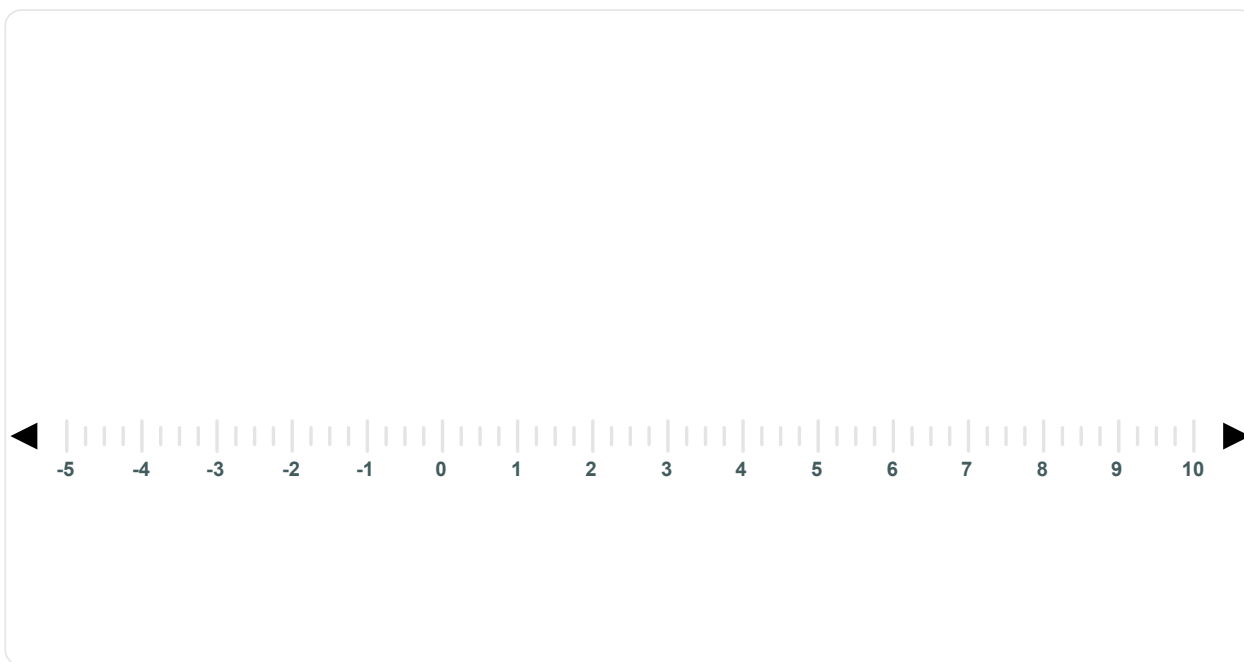
44 Solve the following linear inequalities given in the first column and choose the appropriate result.

Inequalities	$g > -10$	$g \geq 17$	$g > -1$
$7\left(g - 19\right) \geq -14$	○	○	○
$3\left(7g + 17\right) > -19 + 14g$	○	○	○
$6\left(-6g + 6\right) > -2\left(19g - 17\right)$	○	○	○

45 Answer the following given the inequality $4x - 4 < 24$

What is the first step for solving this inequality?

| a | ∨ |

What is the solution to this inequality?

| b | ∨ |

What is the graph of the solution? | c | ∨ |
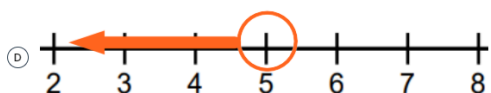
a
- ○ Add 4 to both sides
- ○ Subtract 4 from both sides
- ○ Multiply 4 to both sides
- ○ Divide 4 from both sides

b
- ○ x < 5
- ○ x > 5
- ○ x < 7
- ○ x > 7

c
- ○ A
- ○ B
- ○ C
- ○ D

---

46 The value of b when solving the equation $2(b + 12) = 16$ is:

(A) 4

(B) -4

(C) 6

(D) -6

47 Which graph represents the inequality x $\geq$ 23 ?

(A) A
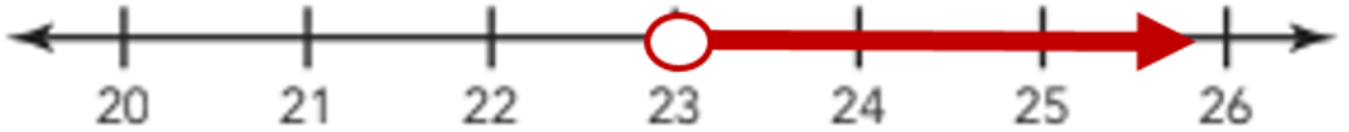
(B) B
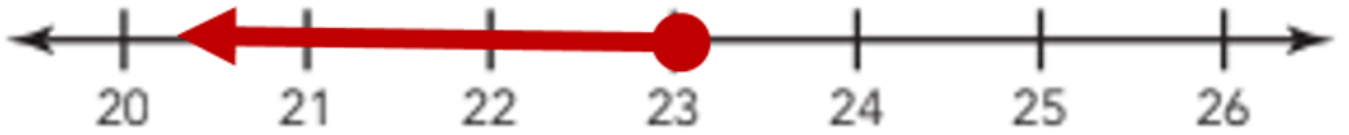
(C) C
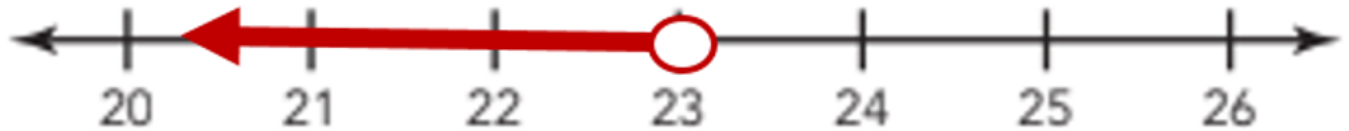
(D) D
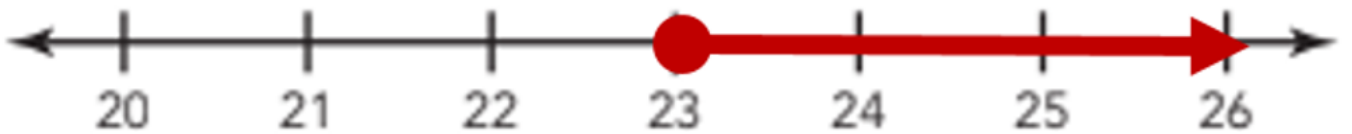
48

Sally is solving the linear equation $13 + 4x - 9 = 7x + 7 - 3x$.

Her final two steps are:
$4 + 4x = 4x + 7$
$4 = 7$

Select the statement that correctly interprets Sally's solution.

(A) The solutions is $x = 0$

(B) The solution is the ordered pair $(4, \ 7)$

(C) There is no solution since $4 = 7$ is a false statement.

(D) There are infinitely many solution since $4 = 7$ is a false statement.

---

49 **Put the data points in order. Give the mean, median, mode, and range.**

Data Set	4	6	5	3	7	1	2	3	5	4

Mean: ☐

Median : ☐

Mode: ☐

Range: ☐

50 | **Find the Mean, Median, Mode and Range for the set of numbers below.**

5, 7, 2, 7, 9, 6, 8, 4

Mean =

Median =

Mode =

Range =

---

51 Select the mean, median, mode and range for the following list of values.
$13, 18, 13, 14, 13, 16, 14, 21, 13$

Averages	14	15	13
Mean	☐	☐	☐
Median	☐	☐	☐
Mode	☐	☐	☐

---

52 Solve the following proportion for x
$$\frac{2}{3} = \frac{x}{750}$$

(A) 500

(B) 750

---

53 # 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

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)

---

54 Tell whether the ratios form a proportion.

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

(A) yes

(B) no

---

55 Use the drawing to create the ratio.

What is the ratio of cups to saucers? [   ]

---

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

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

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

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

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

57

The number that is being multiplied to the variable is called? HINT: 2b, 3x, 5y...the vocabulary word for the 2, 3, and 5 is referred to as... (constant, coefficient, or variable)

58

A cone with radius 6 feet and height 15 feet is shown.
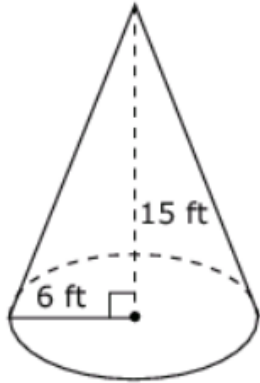
Enter the volume, in cubic feet of the cone. Round your answer to the nearest hundredth.

59

Find the equivalent measurements for both 1 foot and 1 yard.

	36 inches	24 inches	3 feet	2 feet	12 inches
1 foot	☐	☐	☐	☐	☐
1 Yard	☐	☐	☐	☐	☐

60

In the zoo there are 6 lions and 3 tigers. What is the ratio of tigers to total animals?

(A) 1:9

(B) 9:1

(C) 3:9

(D) 9:3

61 A circle has a radius of 10 cm. What is the area of the circle in terms of π?

(A) 25π cm²

(B) 100π cm²

(C) 50π cm²

---

62 Convert the following units of measurement.

12 quarts 3 cups $=$ [_____] cups.

---

63 Which measurement describes the weight of a piece of paper?

(A) 2 Tons

(B) A gram

(C) 7 ounces

(D) 2 liters

---

64 If the total measurement of the angle shown is $132°$, what is the measurement of the missing angle?
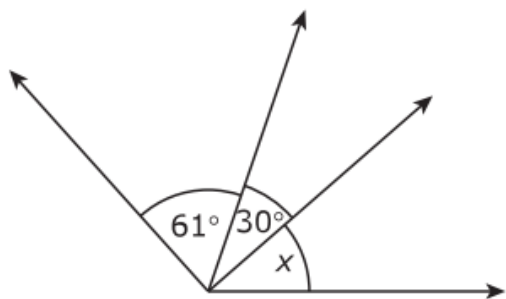
(A) $41°$

(B) $91°$

(C) $102°$

(D) $223°$

65 Add $2f + 5g + 7h$ and $3f + 6g + 8h$.

Answer: _____

---

66 The formula for simple interest plus starting principal, where A= amount, P = principal, r =interest rate per period, and t =time, is given below.

$$A = P + Prt$$

Which could be used to find the time, t, if the amount, principal, and interest are known?

(A) $A - P - Pr = t$

(B) $\dfrac{A - P}{Pr} = t$

(C) $\dfrac{A - Pr}{P} = t$

(D) $\dfrac{A}{P + rt} = t$

67 Which table shows a proportional relationship?

A

x	y
2	4
3	9
4	16
5	25

B

x	y
2	4
3	6
4	8
5	10

C

x	y
2	1
3	2
4	3
5	4

D

x	y
2	8
3	8
4	8
5	8

68 Which table shows a proportional relationship between *x* and *y?*

A

x	*y*
1	0
2	3
3	6

B

x	*y*
1	1
2	3
3	5

C

x	*y*
1	2
2	4
3	6

D

x	*y*
1	3
2	5
3	7

The table represents a proportional relationship.

x	1	1.5	2	2.5
y	4	6	8	10

Which graph represents a proportional relationship with the same unit rate as the table?

(A)

(B)

(C)
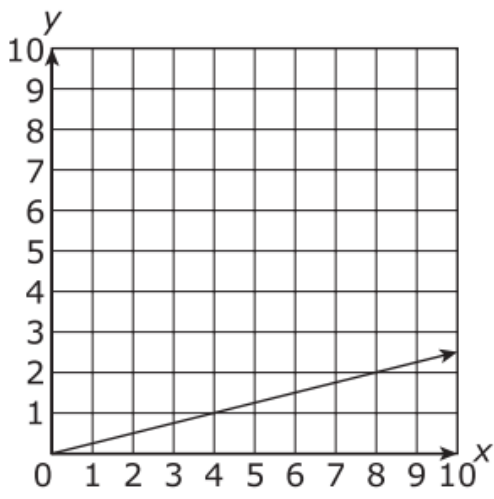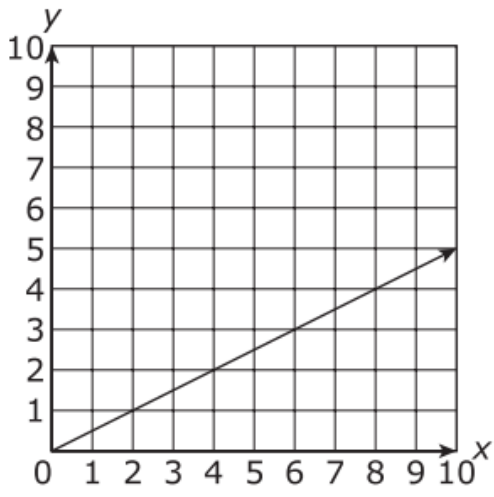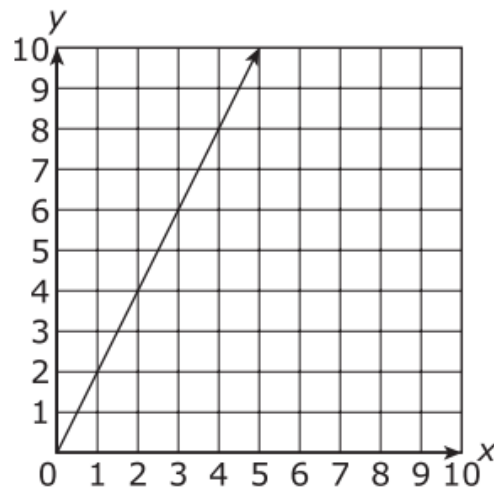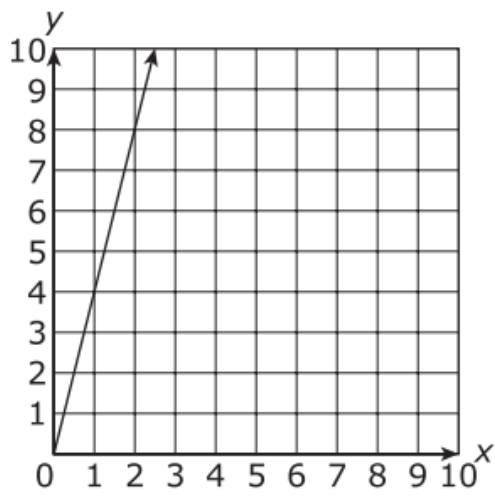
70 Select all tables that represent a proportional relationship between x and y.

A

x	0	1	2	3
y	3	6	9	12

B

x	2	3	4	5
y	12	18	24	30

C

x	2	4	6	9
y	0	2	4	6

D

x	0	1	2	3
y	0	2	5	9

71 If two quantities are proportional, which must be true of a graph showing the relationship between them? Select all that apply.

A The graph is a curve.

B The points on the graph are connected.

C The graph increases from left to right.

D The points of the graph form a straight line.

E The points of the graph must include the origin.

F The points must all form equivalent ratios.

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72 The graph of a proportional relationship is shown.
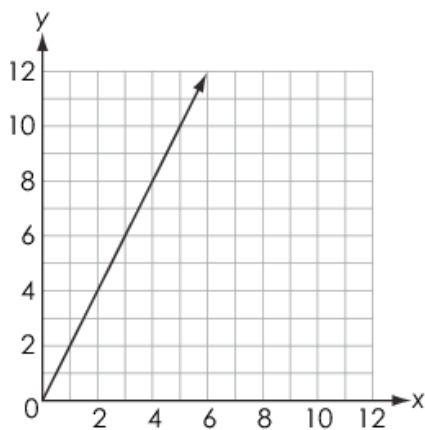
What is the constant of proportionality of the relationship?

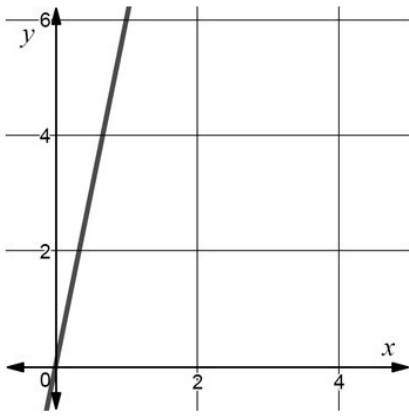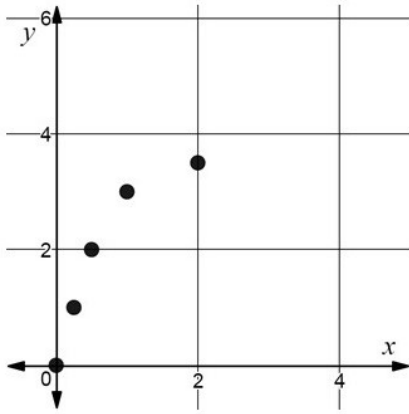**73** Select all graphs that represent a proportional relationship.
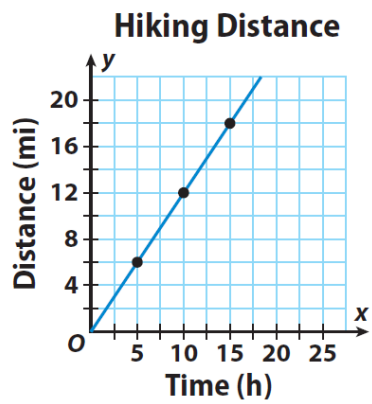
A

B

C

D
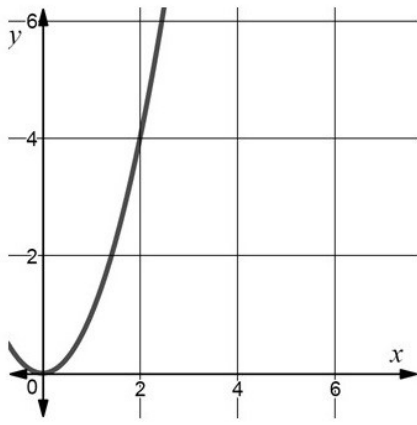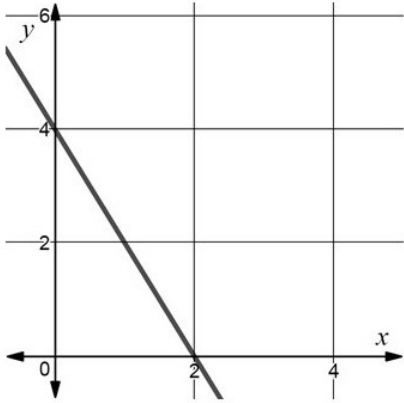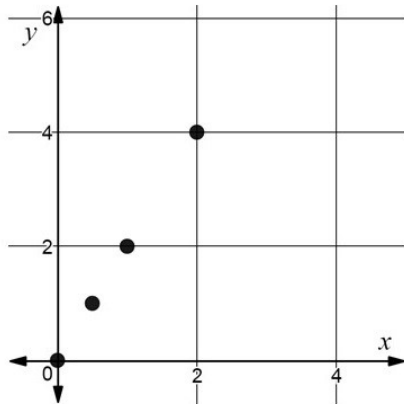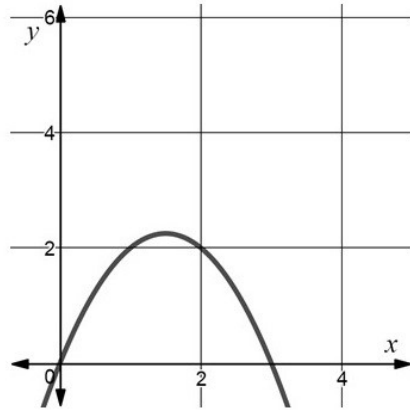
74 A notebook costs 4.50 plus sales tax. After sales tax, the notebook is 4.86. What is the sales tax rate?

(A) 6%

(B) 7%

(C) 8%

(D) 9%

75 Does this graph represent a proportional or nonproportional relationship?

Hiking Distance

(A) Proportional Relationship

(B) Nonproportional Relationship