2023 – 2024 – Grade 7 Math – Spring Final Review

Directions: Answer each question below and show your work. You may use a STAAR Formula chart, which will be available for your final exam as well.

7.5B

1. A group of students formed a circle during a game. The circumference of the circle was about 43.96 feet, and the diameter of the circle was 14 feet.

Which expression best represents the value of pi?

A. 43.96/7
B. 43.96/14
C. 7/43.96
D. 14/43.96

$C = \pi d$

$43.96 = \pi \cdot 14$

$\pi = 43.96 \div 14$ — Change From Multiply to Divide

2. The circumference of a circle is C inches. The diameter of the circle is 19 inches. Write an expression that represents the value of pi.
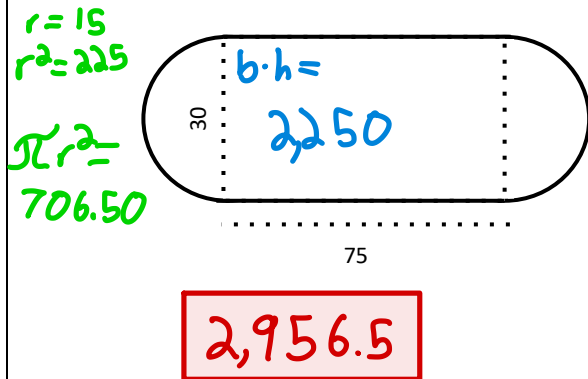
$C = \pi d$

$C = \pi \cdot 19$ — Change From Multiply to Divide

$\pi = \dfrac{C}{19}$

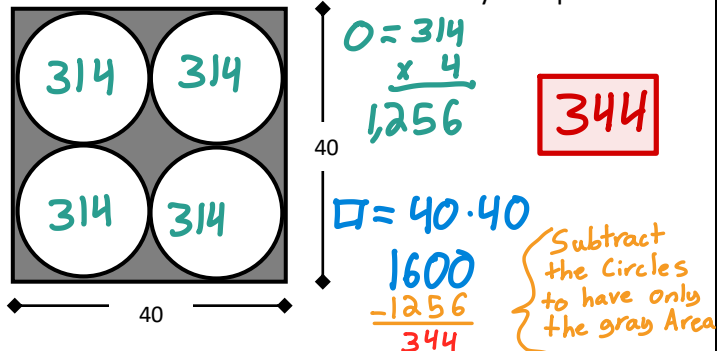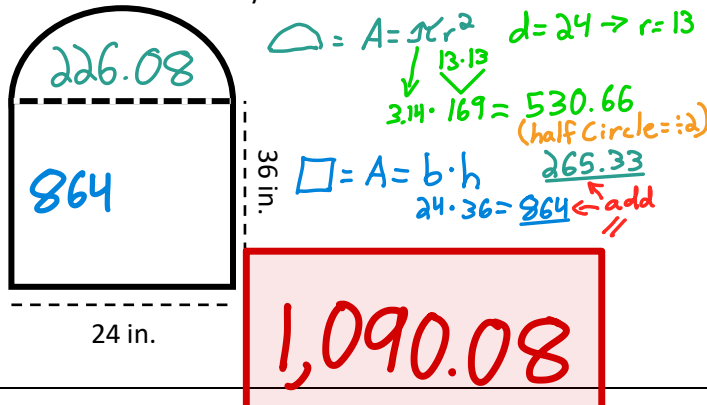$\pi = C \div 19$

7.9C

3. Joyce goes walking on a track shaped like the solid line in the diagram below. Find the total area enclosed by the track.

$r = 15$
$r^2 = 225$

$\pi r^2 = 706.50$

$b \cdot h = 2,250$

30

75

2,956.5

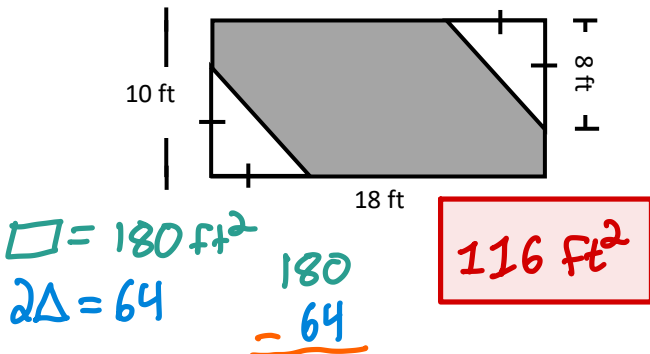**4.** A square field has four sprinklers that spray in areas represented by the circles below. If the shaded portion represents an area that is NOT reached by the sprinklers, find the total area that is not reached by the sprinklers.

314 314
314 314

40

40

$O = 314 \times 4 = 1,256$

344

$\square = 40 \cdot 40$
1600
-1256
344

Subtract the Circles to have only the gray Area

5. A window in Charlotte's house is shaped like a rectangle with a semi-circle on top as shown. Find the total area covered by the window.

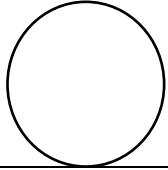226.08

864

36 in.

24 in.

$\bigcirc = A = \pi r^2$ $d = 24 \to r = 13$
$13 \cdot 13$
$3.14 \cdot 169 = 530.66$ (half Circle = ÷2)
265.33

$\square = A = b \cdot h$
$24 \cdot 36 = 864 \leftarrow$ add

1,090.08

6. Find the area of the shaded portion shown.

10 ft

18 ft

8 ft

$\square = 180 \text{ ft}^2$
$2\triangle = 64$

$180 - 64$

116 ft²

7. The top view of Jake's circular pool is shown below. If Jake has a circular pool cover that has a diameter of 26 feet, find the area of the pool cover.

$r = 13$
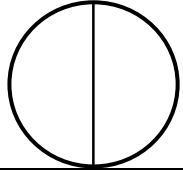
$A = \pi r^2$

530.66

8. Selah is going to plant flowers along the outside of a circular portion at the base of one of her trees. I the circular portion has a diameter of 8.5 feet, find the distance that Selah will be planting flowers along.

$c = d\pi$
$8.5 \cdot 3.14$

26.69

9. A room in the lower level of a cruise ship has a circular window with a diameter of 30 inches. Find the total area of the window.

$r = 15$

$A = \pi r^2$

708.75

10. Desirae purchased a circular clock with a radius of 4.5 inches. She is going to glue a rope along the outer edge of the clock as decoration. Find the length of rope that Desirae will need.
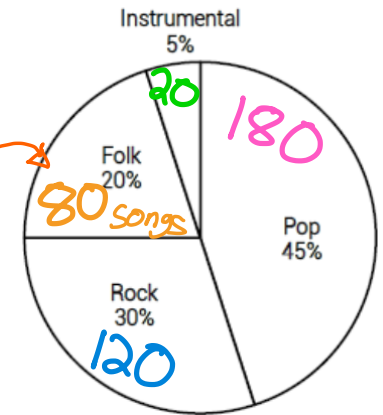
$c = d\pi$ $d = 9$
$9 \cdot 3.14 =$

28.26

11. The circle graph shows the types of songs that Trey has on his phone. Trey has a total of 400 songs on his phone.

How many songs are pop? __180__

How many songs are instrumental? __20__

How many more pop songs does he have than instrumental songs? __160__

$X = 80$ $X \cdot x4$ 20
$\dfrac{X}{400}$ $x4$ $\dfrac{20}{100}$

$$\frac{Part}{Total} = \frac{\%}{100}$$

Instrumental 5%
Folk 20%   90   180
80 songs   Pop 45%
Rock 30%
120

12. Mr. Gomez's class made a bar graph to display the season that each of the students in his class were born. Mark each statement as True or False.
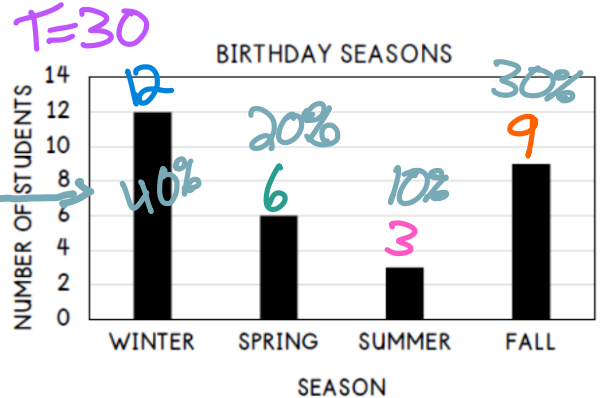
__F__ Twice as many students have Fall birthdays than Spring birthdays.
__F__ 30% of the students have summer birthdays.
__F__ Less than 10% of students have summer birthdays.
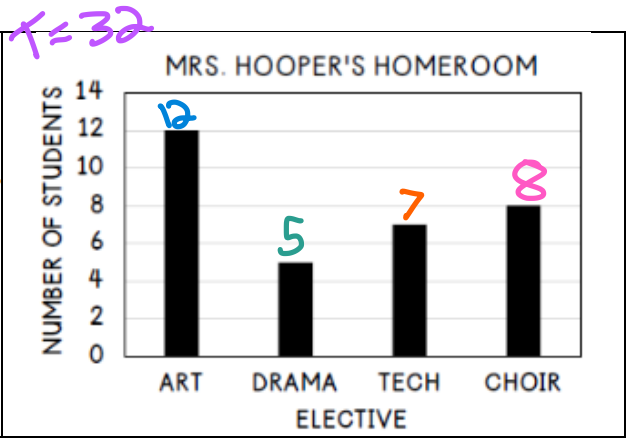__T__ Exactly 20% of students have Spring birthdays.
__T__ There are 30 students in Mr. Gomez's class.

$\dfrac{12}{30}$ $\dfrac{\%}{100}$

$T = 30$

BIRTHDAY SEASONS

12   20%   30%
40%   6   10%   9
3

WINTER   SPRING   SUMMER   FALL
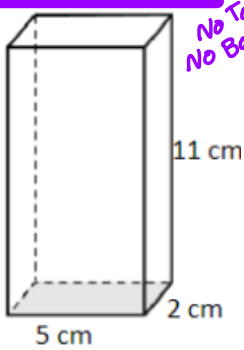SEASON

NUMBER OF STUDENTS

13. The bar graph shows which elective each of the students in Mrs. Hooper's homeroom class are enrolled in. Mark each statement as True or False.

_F_ ¾ of students are enrolled in choir. $\frac{3}{4}=75\%$ $\frac{8}{32}$ $\frac{x}{100}=25\%$

_T_ More than 1/3 of students are enrolled in art.

_F_ 25% of students are enrolled in tech.

_F_ There are 30 students enrolled in Mrs. Hooper's class. Total = 32

T = 32

MRS. HOOPER'S HOMEROOM

NUMBER OF STUDENTS (vertical axis: 0, 2, 4, 6, 8, 10, 12, 14)

ART 12, DRAMA 5, TECH 7, CHOIR 8

ELECTIVE

7.9D

14. A rectangular prism is shown below. What is the lateral surface area?

A = bh

No Top No Bottom

① 11·2 = 22
② 11·2 = 22
③ 11·5 = 55
④ 11·5 = +55

11 cm, 2 cm, 5 cm

154

15. The net below shows four equilateral triangles. What is the total surface area of the triangular pyramid in square feet?
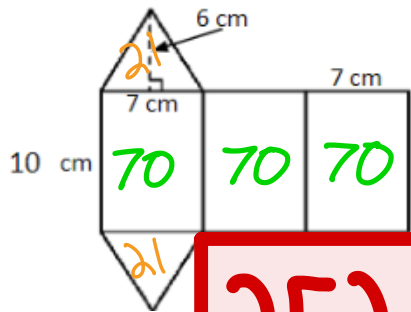
A = ½bh

9·7.8

70.2 / 2

35.1 · 4 =

140.4

35.1, 9 ft, 35.1, 35.1, 35.1
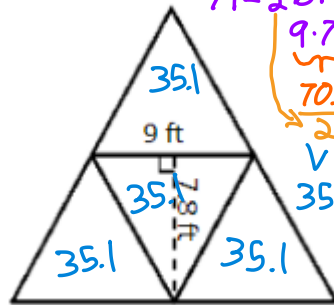
16. What is the total surface area of the figure below?

6 cm, 7 cm, 7 cm, 10 cm

21, 21

70 70 70

□ A = bh
① 10·7 = 70
② 10·7 = 70
③ 10·7 = 70
210

△ A = ½bh
7·6
42
21 × 2 = 42   Add

252

17. What is the surface area of the jewelry box that would need to be wrapped with wrapping paper?

2 cm

10

40 16 40 16   8 cm

5 cm   10
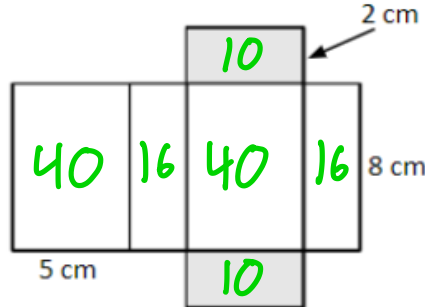
132

18. What is the lateral surface area of the rectangular prism below?

No bottom

A = ½bh
8·18
× 2
144

72, 16 ft, 8 ft, 18 ft

△ A = ½bh
9·16
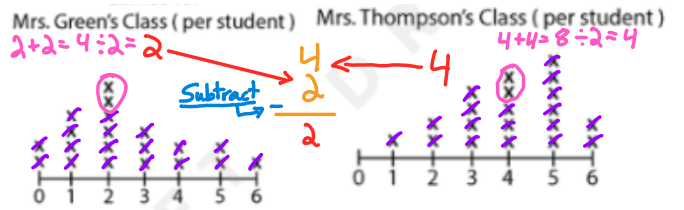× 2
44

72

288
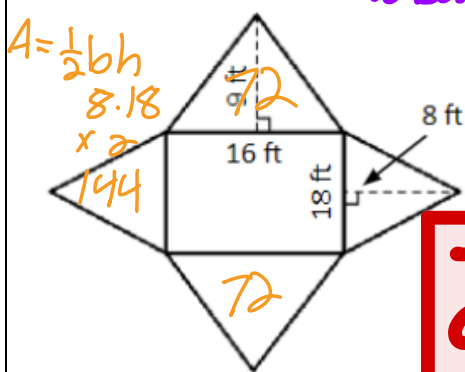
19. The data displayed shows the number of reward points earned per student for two classes. What is the difference between the center of both sets of data? Difference means Subtract   Median

2

Mrs. Green's Class (per student)   Mrs. Thompson's Class (per student)
2+2= 4÷2= 2   4+4= 8÷2= 4
Subtract — $\frac{4}{2}$ $\frac{2}{2}$ 4

20. There are 10 people in Mrs. Ford's class. The dot plots show the number of homework questions missed by each student on Monday and Tuesday. Which statement is supported by the dot plots?

Symetrical   Skewed

❌ The distribution of data is approximately symmetrical in both sets of data.
❌ The range of questions missed was greater on Monday than on Tuesday. Subtract highest & Lowest
❌ The mode on Monday was higher than the mode of Tuesday. Mode = Middle
✔️ The median number of questions missed was greater on Tuesday than on Monday.

Skewed Right
MONDAY
AGE
2+3= $\frac{5}{2}$ = 2.5
7-1 = 6

Skewed Left
TUESDAY
AGE   6
7-1= 6
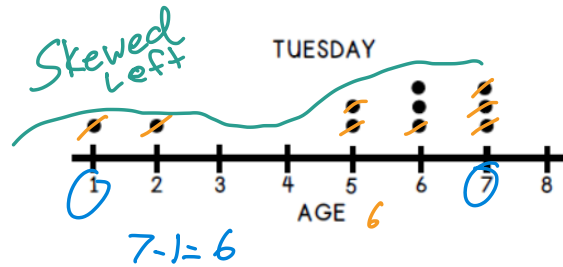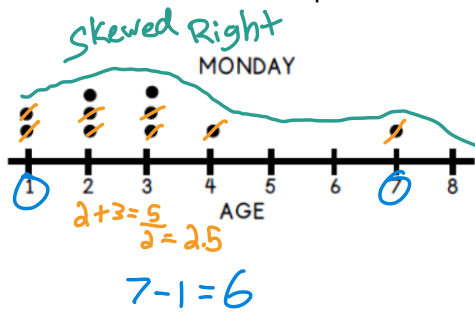
21. A grocery store polls every 20th customer to determine if they are satisfied with the cleanliness of the store. Forty customers are surveyed, and 26 are satisfied. What conclusion can be drawn for the 800 daily customers?

$\frac{26}{40}$ $\frac{13}{20}$ $\frac{x=65\%}{100}$
$\frac{14}{40}$ $\frac{7}{20}$ $\frac{x=35\%}{100}$

❌ 65% of the customers are unsatisfied with the cleanliness of the store.
✔️ Of the 800 customers, 520 would be satisfied with the cleanliness of the store.
❌ 40% of the customers are satisfied with the cleanliness of the store.
❌ 25% of the customers are not satisfied with the cleanliness of the store.

x=520 ← $\frac{x}{800}$ $\frac{65}{100}$

22. Marty can go to one movie on either Friday or Saturday. He will be able to choose either a comedy or an action movie. Make a list to show all the possible outcomes of one movie on one day.

FC, FA,
Sc, SA

23. A coin is flipped, and a standard die is rolled. Create a tree diagram to represent the sample space.

H   Tree Diagram   T
1 2 3 4 5 6   1 2 3 4 5 6

24. Of the first 25 fans who entered a baseball game, 9 were wearing hats. If a total of 300 fans are at the game, how many would you expect to wear hats?

$$\frac{9}{25} \quad \frac{X}{300} =$$

108

25. Of the first 14 people to enter a store, 9 were carrying a purse. If there are now 56 people in the store, how many do you expect to NOT be carrying a purse?

$$\begin{array}{r} 14 \\ -9 \\ \hline 5 \end{array} \qquad \frac{5}{14} \times 4 \frac{X}{56} \qquad 14\overline{)280}$$

20

26. A health study of 540 students found the only 7 in 20 adults get enough sleep each night. Based on the results of the sample, how many adults got enough sleep?

A. 27
B. 35
C. **189**
D. 202

$$\frac{7}{20} \, {}^{\times 27}_{\times 27} \quad \frac{X}{540} = \quad 189$$

27. Vincent flipped 3 coins during a probability experiment. The outcomes of the first 40 trials are below.

Faces Showing on Flipped Coins	Number of Outcomes
3 tails	4
1 head, 2 tails	13
2 heads, 1 tail	16
3 heads	7

Based on the table, how many of the next 120 trials will exactly two coins show heads?

48

$$\frac{16}{40} = \frac{2}{5} \, {}^{\times 24}_{\times 24} \quad \frac{48}{120}$$

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28. A bag contains a total of 300 purple and yellow beads. Without looking, a student chooses a bead, records the color, and places it back in the bag. The student records 9 purple beads, and 16 yellow beads. What is the best prediction of the total number of yellow beads in the bag?

Recorded: 9 Purple and 16 yellow
↳ Add Them ↲
⇓
25 in Total

A. 108
B. **192**
C. 25
D. 168

New Total = 300

The Theoretical New Amount of Yellow beads } = "x"

$$\frac{16}{25} = \frac{X}{300} \longrightarrow \frac{16}{25} \, {}^{\times 12}_{\times 12} = \frac{192}{300}$$

29. A bag contains a total of 150 green and blue marbles. Without looking, a student chooses a marble, records the color, and places it back in the bag. The student records 4 green marbles and 11 blue marbles. Predict the total number of blue marbles in the bag.

Blue Marbles

$$\frac{11}{15} \, {}^{\times 10}_{\times 10} \quad \frac{X}{150}$$

110

Total   New Total

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30. Piper is decorating tables for an event. Eight of the tables have floral decorations in the center and four of the tables have candle decorations. Each table has 6 chairs. If the guests will be seated randomly at the tables, what is the probability that the first guest to arrive is seated at a table with a floral decoration in the center?

8 + 4 = 12 Total Tables

A. 1/2
B. **2/3**
C. 1/48
D. 1/3

$$\frac{8}{12} \, {}^{\div 4}_{\div 4} \, \text{Simplify} \longrightarrow \frac{2}{3}$$

31. Harold bought 2 bouquets of flowers for his daughters. Each bouquet has 5 roses, 5 daisies, and 10 carnations. What is the probability that Harold would randomly select 1 daisy from each bouquet of flowers?

5 + 5 + 10 = 20 Total Flowers in each

Bouquet 1
$$\frac{5}{20} \Rightarrow \frac{1}{4}$$

$$\frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$$

Bouquet 2
$$\frac{5}{20} \Rightarrow \frac{1}{4}$$

$$\frac{1}{16}$$

32. A teacher has a container of paper clips. She will randomly select one paper clip from the container.
The container has: *Total = 50*
- $\frac{4}{25}$ ● 8 pink paperclips
- $\frac{7}{25}$ ● 14 purple paper clips
- $\frac{6}{25}$ ● 12 yellow paperclips
- $\frac{8}{25}$ ● 16 blue paperclips

Which statement is true?

✔️ P(purple) = 7/25   ❌ P(purple) = 1/14
❌ P(pink) = 4/25   ❌ P(white) = 1
❌ P(not yellow) = 6/25
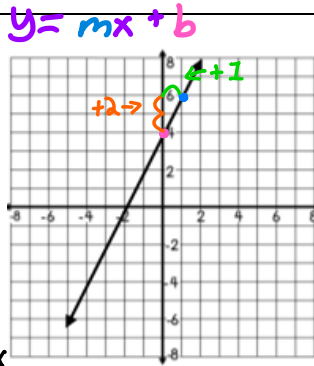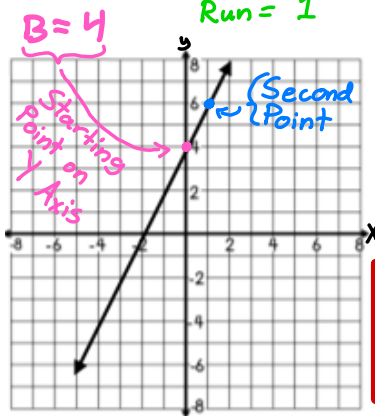❌ P(purple or yellow) = 26/25

33. The probability of a spinner landing on yellow is 1/4. What does 3/4 represent?

    A.   P = yellow
    B.   P = blue
    C.   P = not yellow
    D.   P = purple and blue

$\frac{1}{4}$ = yellow

$\frac{3}{4}$ is not Yellow

34. Write an equation that best represents the linear relationship?

$y = mx + b$
Rise = $\frac{2}{1}$ = 2
Run = 1
B = 4
Starting Point on Y Axis
(Second Point)

$$y = 2x + 4$$

35. Sarah is making jam. She cans her jam at a rate of 20 cans every 5 per hour.
Which answer choices best represent canning *y* jars in *x* hours at that rate?
Circle **two** correct answers!

y = ¼x

Hours (x)	Jars (y)
4	1
8	2
12	3

y = 4x

Hours (x)	Jars (y)
2	8
3	12
6	32

36. Martin goes on a bike ride on Saturday. He rides 6 miles in 1 hour. Write an equation that best represents **y**, the total miles Martin rides in **x** hours if he continues at this rate?

b = 6

x	y
1	6
2	12
3	18

$$y = 6x + 6$$

37. The table shows a linear relationship between **x** & **y**.

x	-4	0	2	8
y	-1	1	2	5

Create an equation that describes the relationship shown in the table.

| 1 | - | ½ | 2 | -1 | 4 | -4 |

$\frac{\Delta y}{\Delta x} = \frac{2}{4} = \frac{1}{2}$

$$y = \left(\frac{1}{2}\right)x + 1$$

38. Natasha has a job putting letters in envelopes to be mailed. In 1 hour, she put 42 letters in envelopes.

Which equation best represents **y (the total number of letters)** Natasha puts in envelopes in **x (hours)** if she continues at this rate?

X	y
1	42
2	84
3	126

$\frac{42}{1} = 42$

$y = 42x$

a. x = y + 42
b. y = x + 42
c. x = 42y
d. **y = 42x**

39. Write an equation that represents the linear relationship between the x-values and the y-values in the table?

When "x" is 0
We find the "y-Intercept"
This is "b"

x	y
1	1
3	13
5	25

$\Delta = Change$
$K = \frac{\Delta y}{\Delta x}$
$\frac{12}{2} = \frac{6}{1} = 6$

$y = 6x - 5$

**40.** Which situation best represents the equation: y = 2.5x ?

Does Not Belong
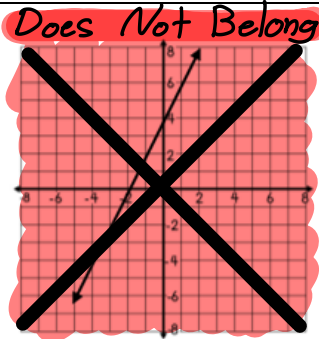
a. Each day, 2.5 inches of *Negative* water evaporates from the experiment.
b. Two cartons of eggs ring up at the register for $2.50.
c. A bank account is opened with a balance of $5, and $2.50 is deposited each day.
d. John is 2.5 times as big as his brother Sam.

41. A dog eats 1.25 cups of dog food twice a day. Which graph best represents this relationship?

1.25   2.50 cups 1 day
x   2
2.50
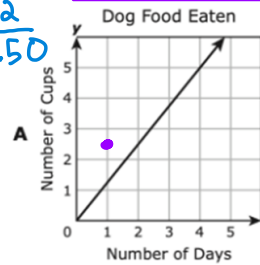
42. Which value of *x* is **NOT** in the solution set of the inequality -4x + 7 ≤ -5

a. **2**   c. 3
b. 6   d. 12

43. Solve for x:

$x = -5$

-12x - 7 = 53
$\frac{}{-12}$ +7 +7
60
-12

44. Solve the inequality below and represent the solution on the number-line.

Change Direction of Sign

-8x + 40 > -16
-8 -40 -40
$\frac{-56}{-8} = 7$
x < 7

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

45. The model represents an inequality.

KEY
= x
☐ = 1
☐ = -1
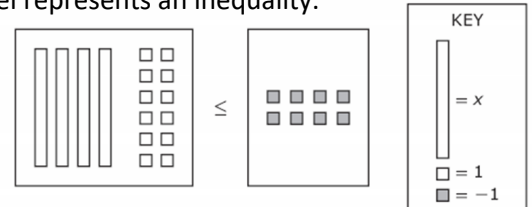
What is the solution set for the inequality? 4x + 12 ≤ -8
4   -12 -12
-20
4

$x = -5$