Ratio : Proportion / Geometry
EOG Review Study Guide

You should be able to answer these types of Problems for the test.

1. What is the area of the figure below?

about 5

about 5

8 · 3 = 24
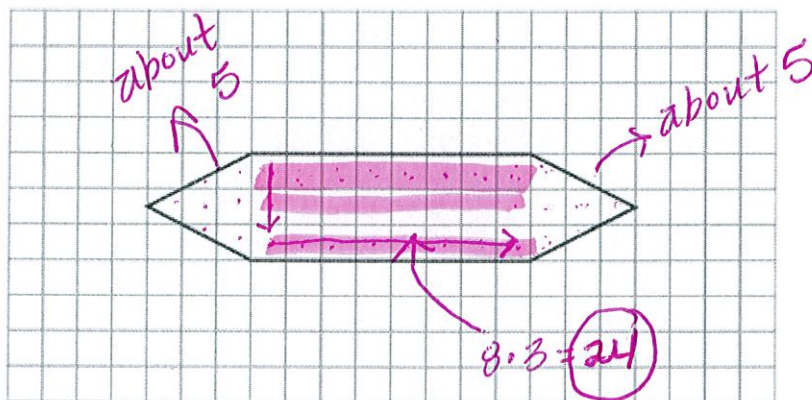
approximately 34

A 21 units^2

B 33 units^2

C. 42 units^2

D. 52 units^2

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2. Danisha formed a right triangle out of two right triangles and a rectangle as shown below.

$\rightarrow \frac{20 \times 15}{2}$ or $\frac{1}{2}(20 \times 15)$

20

15

15×30

30

$\rightarrow \frac{30 \times 25}{2}$ or $\frac{1}{2}(30 \times 25)$

25
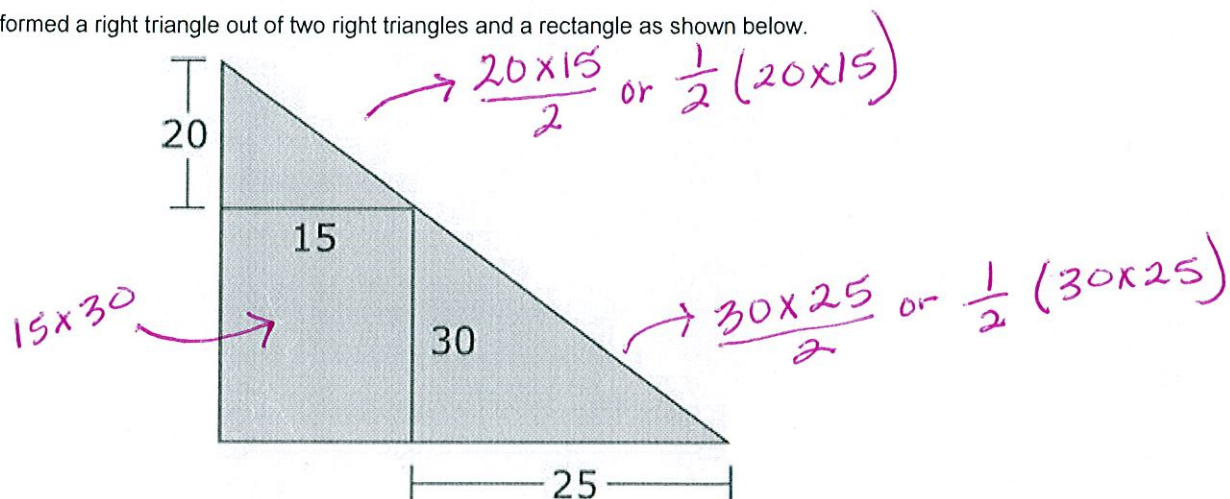
Which expression can be used to find the area of Danisha's triangle?

A. $A = (20 \times 25)$

B. $A = \frac{1}{2}(20 + 30) \times (15 + 25)$

C. $A = (20 \times 15) + (15 \times 30) + (30 \times 25)$

D. $A = \frac{1}{2}(20 \times 15) + (15 \times 30) + \frac{1}{2}(30 \times 25)$

3. Linda has an outdoor playpen for her dogs that is shaped like the trapezoid shown below.
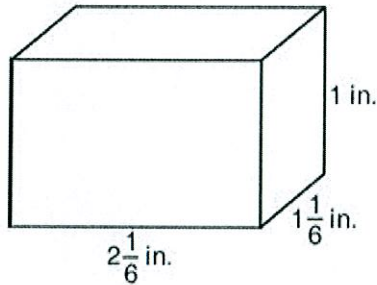
15 ft

14 ft

30 ft

$\frac{b^1 + b^2 (h)}{2} = \frac{15 + 30 (14)}{2} = \frac{45(14)}{2}$
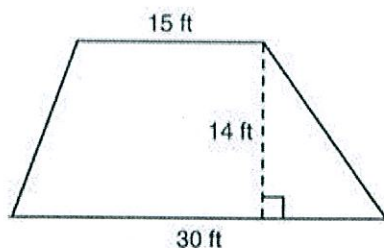
$\frac{630}{2} = 315$

What is the area of the playpen?

A. 225 square feet

B. 315 square feet

C. 630 square feet

D. 3150 square feet

4. The dimensions of a right rectangular prism are shown below.

1 in.

$1\frac{1}{6}$ in.

$2\frac{1}{6}$ in.

(handwritten) ① Volume of the container

$2\frac{1}{6} \cdot 1\frac{1}{6} \cdot 1 = 2\frac{19}{36}$

How many cubes with side lengths of $\frac{1}{6}$ inch are needed to fill the prism without gaps or overlaps?

(handwritten) ② volume of the cube that will be filling the container

$\frac{1}{6} \cdot \frac{1}{6} \cdot \frac{1}{6} = \frac{1}{216}$

A   36 cubes

B   91 cubes

(handwritten) ③ Divide the two volumes

C   216 cubes

D   546 cubes *(circled)*

$2\frac{19}{36} \div \frac{1}{216} = 546$

5. A rectangular prism has the following dimensions:

- Length: 9 ft
- Width: $10\frac{1}{2}$ ft
- Height: $7\frac{1}{2}$ ft

(handwritten) $9 \cdot 10.5 \cdot 7.5 = 708.75$

What is the volume of the rectangular prism?

A $708\frac{3}{4}$ ft^3 *(circled)*

B $481\frac{1}{2}$ ft^3

C   189 ft^3

6. A camera company packs each camera in a cube-shaped box with side lengths of $\frac{3}{4}$-ft. Then the company ships the cameras in a container with dimensions of $1\frac{1}{2}$ ft by $2\frac{1}{4}$ ft by $1\frac{1}{2}$ ft. What is the maximum number of camera boxes that will fit in the container?

A. 7

B. 8

C. 12

D. 18

(handwritten: ① Volume of cube shaped box $\frac{3}{4} \cdot \frac{3}{4} \cdot \frac{3}{4} = \frac{27}{64}$)

(handwritten: ② shipping Container $1\frac{1}{2} \cdot 2\frac{1}{4} \cdot 1\frac{1}{2} = 5\frac{1}{16}$)

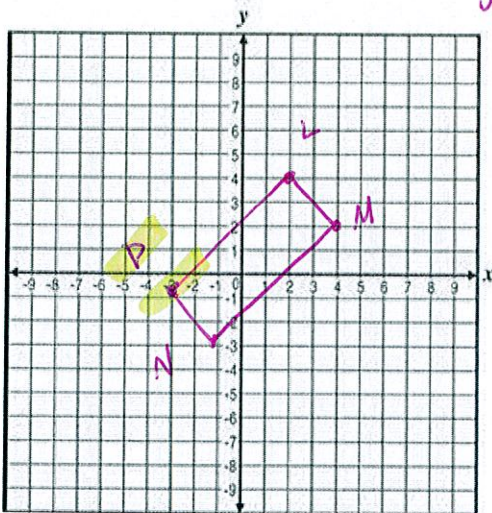*(handwritten: ③ Divide the two Volumes $5\frac{1}{16} \div \frac{27}{64} = 12$)*

7. The coordinates for three of the vertices of Rectangle *LMNP* are given below.

$L(2, 4), M(4, 2), N(-1, -3)$

(handwritten: ① graph the points you are given first.)
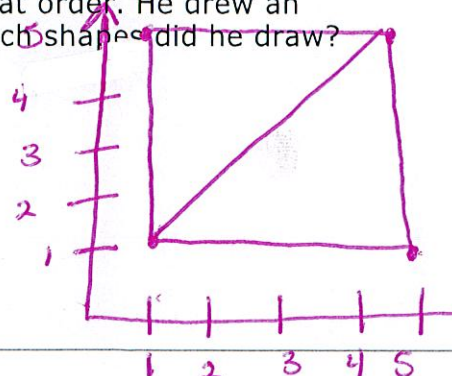
(handwritten: ② find the missing point)

What are the coordinates of Point *P*?

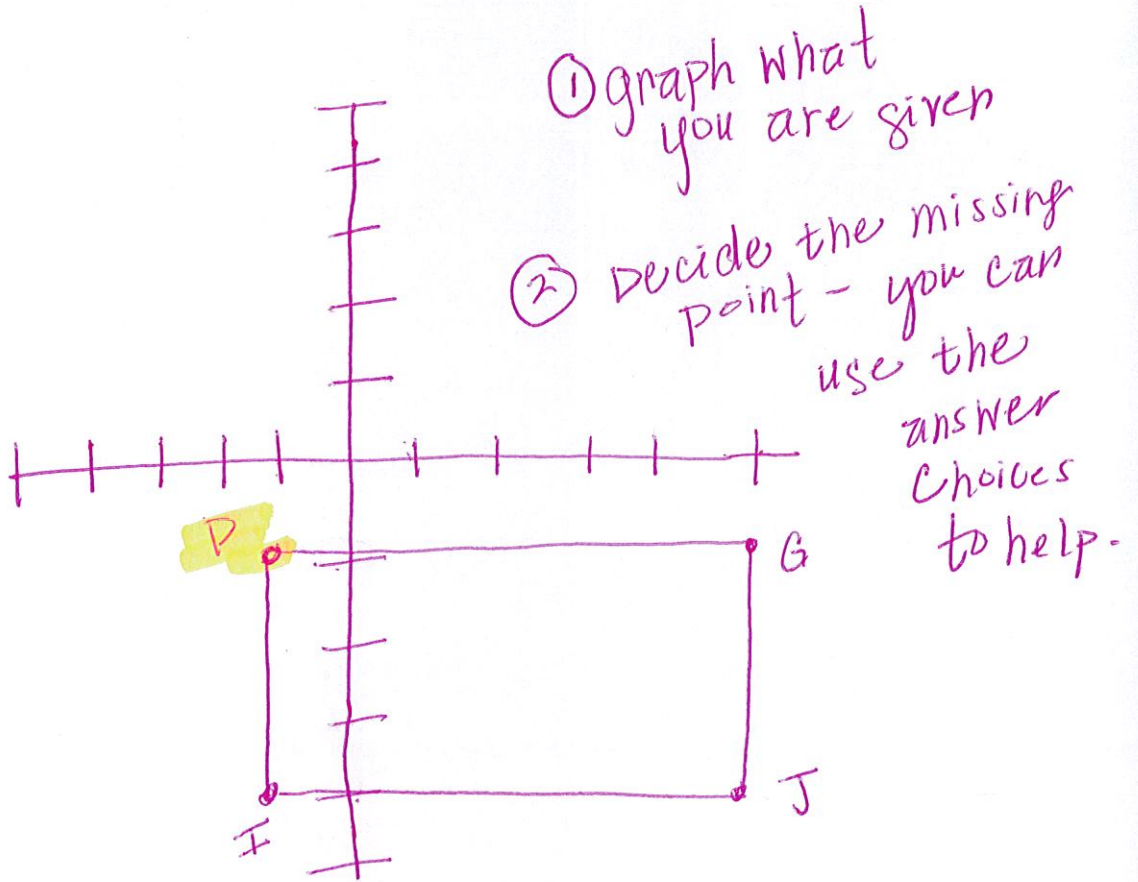A. $(3, 1)$

B. $(-2, -4)$

C. $(-3, 1)$

D. $(-3, -1)$

8. Seth plotted the coordinates (1, 1), (1, 5), (5, 1), and (5, 5) on a coordinate plane. He connected each point in that order. He drew an additional line connecting (1, 1) and (5, 5). Which shapes did he draw?

A. a square and a rectangle

B. a rectangle and a triangle
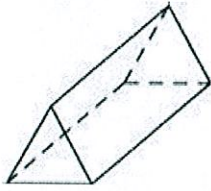
C. two triangles

D. two rectangles

9. Three of the vertices of rectangle *GHIJ* are located at $G(5, {}^-1)$, $I({}^-1, {}^-4)$, and $J(5, {}^-4)$. What are the coordinates of vertex *H*?

A (1, 4)

B. (1, 1)

C. ($^-$1, 4)

D. ($^-$1, $^-$1)

① graph what
you are given

② Decide the missing
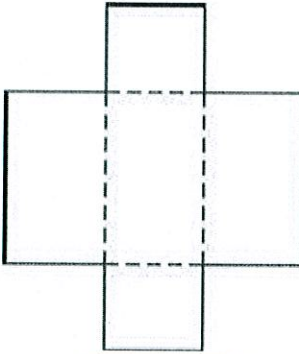point — you can
use the
answer
choices
to help.

10. Which pattern can be folded on the dotted lines to make a triangular prism like the one shown below?
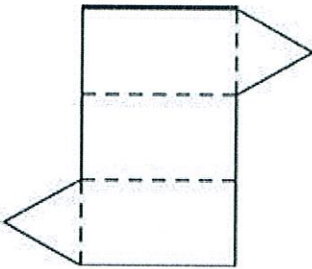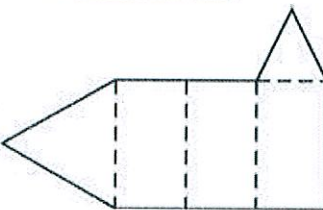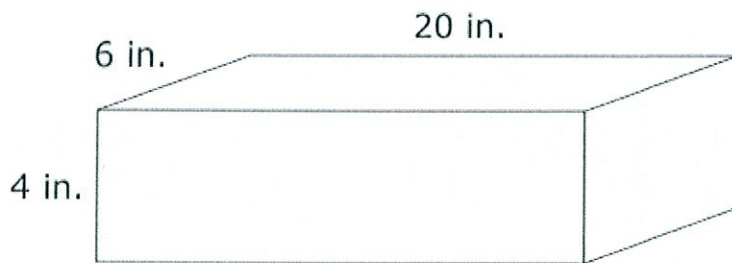
A.
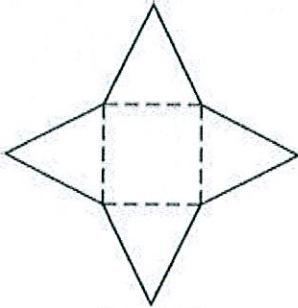
B.

C.

D.

Triangular Prism =
2 congruent triangular bases
3 rectangular faces

11. Danielle bought a gift for her sister and put it in the box below. She wants to wrap the box with wrapping paper.

Handwritten annotations (left):
Top 20·6 = 120
Bottom 120
Front 4·20 = 80
Back 80
Left 6·4 = 24
Right 24
↓ add
120+120+
80 + 80+
24+24 = Ⓒ
448

Handwritten annotations (right):
Cover the box = Surface area

6 in.   20 in.

4 in.

What is the minimum amount of wrapping paper Danielle needs to cover the box?

A   224 in.^{2}

B.   328 in.^{2}

Ⓒ.   448 in.^{2}

D.   480 in.^{2}

12. The net of a right triangular prism is shown below.

Handwritten annotations:
8·6 = $\frac{48}{2}$ = 24

54
Ⓢ36
10 ft 24 6 ft 24
6
8 ft
54

6 ft
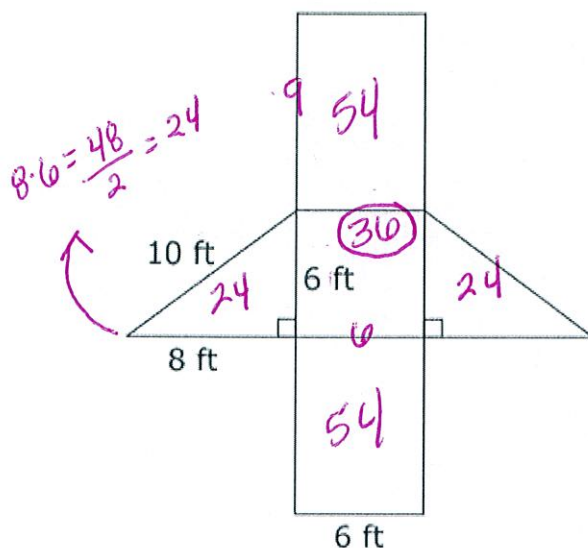
What is the surface of the triangular prism?

A   288 ft^2

B.   224 ft^2

Ⓒ   192 ft^2

D.   144 ft^2

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13. **What is the ratio of shaded to unshaded squares in the grid below?**

1				2
	3		4	
		5		
	6	7	8	
9				10
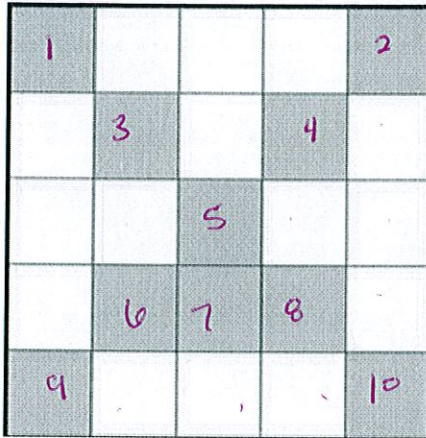
$\frac{10}{15}$ $\begin{array}{c} \div 5 \\ \div 5 \end{array}$ $\frac{2}{3}$

A. $\frac{1}{3}$

B. $\frac{2}{5}$

C. $\frac{3}{5}$

D. $\frac{2}{3}$

14. The table shows the items sold at a bake sale.

Items in a Bake Sale

Baked Good	Number Sold
cookies	50
cupcakes	25
muffins	20
brownies	32

What is the ratio of brownies sold to the total number of cupcakes and cookies sold?

A. 32 : 95

B. 32 : 75

C. 32 : 50

D. 50 : 75

$\frac{32}{75}$

15. John has a collection of toy cars. He has 2 red cars, 4 blue cars, 4 black cars, and 6 yellow cars. What is the ratio of red cars to yellow cars?

A 1 : 2

B. 1 : 3

C. 1 : 6

2 : 6 reduces to 1 : 3

16. In 2.5 hours, 0.64 inch of rain fell. At **about** what rate did the rain fall?

A 0.18 inch per hour

B 0.26 inch per hour

C 0.32 inch per hour

D 1.60 inches per hour

.64 inches rain
————— divided over
2.5   2.5 hours
= .256 rounds to .26

17. A tour bus traveled 912 miles in 16 hours. What was the average rate the bus traveled?

A 58 mph

B 57 mph

C 56 mph

D 55 mph

always divide to find a unit rate

912 miles
————— = 57
16

÷ over 16 hours

18. Ava takes guitar lessons. The lessons cost $90 each month. She has 4 lessons per month. How much does each of Ava's guitar lessons cost?

A $11.25

B $12.50

C $20.00

D $22.50

$90
——— = $22.50
4

→ rate is 1 mile = 11 minutes

19. For every mile that Terrence steps, he spends 11 minutes on a stair-climber. Which table correctly represents the relationship between miles and minutes?

Find the ratio table that reflects that rate

A.

Miles	Minutes
11	1
12	2
13	3
14	4
15	5
16	6

B.

Miles	Minutes
1	11
2	22
3	33
4	44
5	55
6	66

C.

Miles	Minutes
1	11
2	12
3	13
4	14
5	15
6	16

→ this one starts correctly but the pattern does not continue

D.

Miles	Minutes
11	1
22	2
33	3
44	4
55	5
66	6

20. Using the table below, what is the value of *y* when *x* is 20?

x	y
8	24
12	36
16	48
20	?

First find the relationship between x & y
increase by 3
3x

3×20 = 60

A   58

B. 60

C. 84

21. The table shows the number of hours Amanda worked in one week and how much she earned each day.

Amanda's Work

| Day of the Week	Number of Hours	Amount Earned
Monday	3	$36.00
Tuesday	6	$72.00
Wednesday	2	$24
Thursday	4	$48.00
Friday	8	$96.00

Find the unit rate by dividing

$$\frac{\$36}{3} = 12$$

amanda earns $12 per hour

Based on the table, what is one way to find the amount that Amanda earned on Wednesday?

A. take $14.00 off of what she earned on Monday $22
B. divide Thursday's pay by 2 $48 \div 2 = \$24$
C. multiply 2×8
D. subtract $36.00 from $48.00

So Wednesday
$$\begin{array}{r} 12 \\ \times \ 2 \\ \hline \$24 \end{array}$$

22. Beth wants to cover a placemat with rows of stitches, as shown below. Beth completed the first 2 rows of stitches in $\frac{1}{2}$ hour.
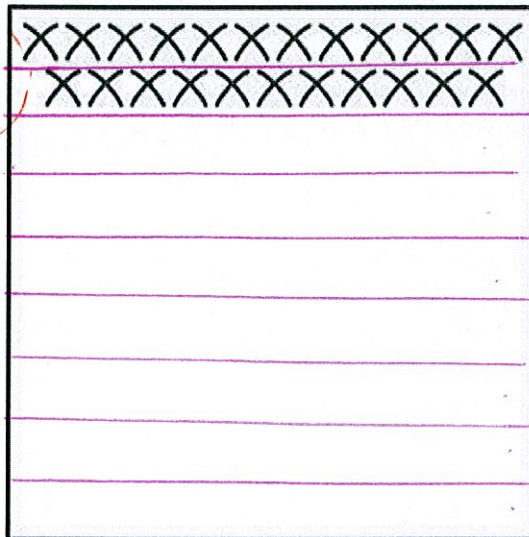
or you can estimate that about 1/4 is stitched so $\frac{1}{2}$ hour × 4 = 2

approx. $2\frac{1}{4}$ hours

At this rate, which estimate is closest to the amount of time Beth will take to fill the placemat with the remaining rows of stitches?

A. $\frac{1}{2}$ hour
B. 1 hour
C. $1\frac{1}{2}$ hours
D. 2 hours

23. It takes Blanca 8 hours to travel a distance of 540 miles. At this rate, how many miles does Blanca travel in 12 hours?

A. 1080
B. 810
C. 360
D. 270

(handwritten) ① find the unit rate 1st $\frac{540\ miles}{8\ hours} = 67.5\ mph$

② 67.5 × 12 = 810 miles

24. Matt walked 3 blocks every 2 minutes. Ross walked 6 blocks every 13 minutes. Which comparison of these walking rates is true?

A. Matt walked faster than Ross.
B. Matt and Ross walked at an equal rate.
C. Matt walked 3 blocks per minute slower than Ross.
D. Matt walked 0.6 blocks per minute faster than Ross.

(handwritten) 1.50 − .46 = 1.04 Matt walked 1.04 per min faster

Matt $\frac{3\ blocks}{2\ min}$ + divided over = 1.5 blocks per min

Ross $\frac{6\ blocks}{13\ min}$ = .46 blocks per min

25. A company held a taste test study with its new fruit snacks.

• In the study of 1,000 students, half the students tasted a plain fruit snack and half tasted a fruit snack with peanuts added.   *(handwritten: 500   500)*
• In the group that tasted the plain fruit snack, 60% said that they would eat the fruit snack again.
• In the group that tasted the snack with peanuts added, 22% said that they would eat the snack with peanuts again.

How many students in the study said they would eat the type of snack they tasted again?

A. 41
B. 82
C. 410
D. 820

(handwritten) Plain 60% of 500 60% × 500 = 300

Peanut 22% of 500 22% × 500 = 110

300 + 110 = 410

To find a percent of a # multiply the % times the number

26. Which phrase describes the least value?

A. 10% of 50   5
B. 25% of 32   8
C. 60% of 5   3
D. 75% of 8   6

(handwritten) Find the % of each # by multiplying the % by the #

27. At a school, 20% of the sixth-grade students are in the band. There are 22 sixth-grade students in the band. How many sixth-grade students are in the school?

A. 90
B. 110
C. 440

(handwritten) 22 is 20% of what number

$\frac{is}{of} = \frac{\%}{100}$

$\frac{22\ (×1.1)}{X\ (×1.1)} = \frac{20}{100}$ 110

OR Reason that there are 5 sets of 20% in 100 so.... each 20% is 22

| 22 | 22 | 22 | 22 | 22 |
| 20% | 20% | 20% | 20% | 20% |

100%

22 × 5 = 110

28. The table below shows the top speed recorded for an ostrich on 4 days.

Ostrich Speeds

Day	Speed
1	40 kilometers per hour	*20 miles*
2	45 miles per hour	
3	40 miles per hour	
4	50 kilometers per hour	*25 miles*

On which day did the ostrich run fastest?

A. Day 1
B. Day 2
C. Day 3
D. Day 4

now compare
1 20 miles
2 45 miles
3 40 miles
4 25 miles

1km = .62 miles
Just remember that 1km is equal to a little more than 1/2 mile so to get each of these to the same unit you can decrease all of the km by half.

29. Liesa wants to put grass seed on her rectangular-shaped backyard. She measured her backyard as 80 feet long by 54 feet wide. How many square yards of grass seed will Liesa put down?

A. 360
B. 480
C. 1440
D. 4320

80
× 54
4320

answer key wrong

30. A camel drank 110 liters of water. What number of milliliters is equivalent to 110 liters?

A. 0.11 milliliter
B. 1.1 milliliters
C. 11 000 milliliters
D. 110 000 milliliters

1000 milliliters = 1 liter

You should know that milli means 1000

$$\frac{1 \text{ Liter}}{110 \text{ liter}} \underset{(\times 1000)}{\overset{(\times 1000)}{=}} \frac{1000 mL}{110,000 mL}$$