

Practice Math Questions for the HMST Entrance Exam

Identify the choice that best completes the statement or answers the question.

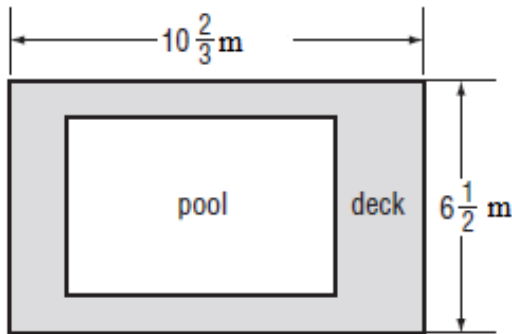
1. People have about 25, 000, 000, 000,000 red blood cells in their bodies at any one time. What is the number in scientific notation?

- A 2.5×10^{10}
- B 2.5×10^{11}
- C 2.5×10^{12}
- D 2.5×10^{13}

2. One light year is approximately 5.879×10^{12} meters per hour. What is this number in standard notation?

- A 5.876 million meters
- B 5,879,000 meters
- C 5,879,000,000 meters
- D 5,879,000,000,000 meters

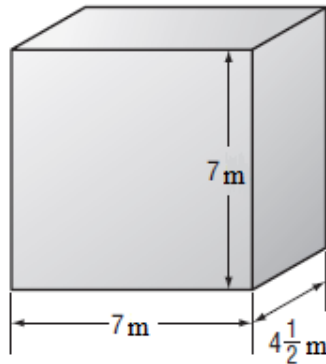
3. The diagram below shows the pool and deck area in Tyler's backyard. The dimensions of the deck are shown on the diagram.



What is the perimeter of the deck in Tyler's backyard?

- A $32\frac{1}{6}$ m
- B $34\frac{1}{6}$ m
- C $34\frac{1}{3}$ m
- D $69\frac{1}{3}$ m

4. Georgia has a plastic container that is a rectangular prism. Its dimensions are shown in the diagram below.



She will fill the container half way with water. How many cubic metres of water will she put in the container?

- A $220\frac{1}{2}m^3$
- B $110\frac{1}{4}m^3$
- C $50\frac{1}{8}m^3$
- D $9\frac{1}{4}m^3$

QUESTION #	#1	#2	#3	#4
ANSWER				

5. Ellen and Terri are shopping at the grocery store and buy the items on their shopping list shown in the table.

Item	Cost
bananas	\$1.49
milk	\$2.29
bread	\$1.29
soda	\$3.49
apples	\$1.40
rice	\$1.39

Ellen used shopper savings card and they received a 5% discount from the total cost. If Ellen and Terri each pay half of the grocery bill, what is a reasonable amount for each one to pay?

- A \$3.98
 B \$4.82
 C \$5.05
 D \$5.40
8. The legend on a map indicates that $\frac{1}{2}$ cm = 16 km.

If two towns are 88 km apart, how far apart are they on the map?

- A $2\frac{3}{4}$ cm.
 B 3 cm.
 C $3\frac{1}{2}$ cm.
 D $4\frac{1}{4}$ cm.

6. Marty's Grocers sell 7 mangos for \$5. Which of these represents mangos being sold at the same unit price?

- A 1 mango for \$1.25
 B 5 mangos for \$4
 C 10 mangos for \$14
 D 21 mangos for \$15

7. Which of the following represents a proportion?

- A $\frac{1}{2} = \frac{0.5}{1.5}$
 B $\frac{3}{7} = \frac{7}{3}$
 C $\frac{3}{4} = \frac{0.75}{1}$
 D $\frac{6}{8} = \frac{2}{3}$

9. A bag of jellybeans contains 14% green apple, 35% strawberry, 18% banana, 24% coconut, and 9% grape jellybeans. Greg put 400 jellybeans in a jar. Which proportion can be used to find b , the total number of banana jelly beans that you would expect to find in the jar?

- A $\frac{400}{b} = \frac{18}{100}$
 B $\frac{b}{400} = \frac{18}{100}$
 C $\frac{18}{400} = \frac{b}{100}$
 D $\frac{b}{18} = \frac{100}{400}$

QUESTION #	#5	#6	#7	#8	#9
ANSWER					

10. Max has driven 155 km and used 5 L of gasoline. If he has 12 L of gasoline remaining in the tank, how many more kilometres can he drive on the tank of gasoline?

- A 2.6
- B 66
- C 286
- D 372

12. The scatter plot shows the relationship between a person's height and the amount of time that person spends reading books. Which conclusion can be drawn from the scatter plot?



- A As a person's height increases, the amount of time that person spends reading books increases.
- B A person's height and the amount of time that person spends reading books are not related.
- C As a person's height decreases, the amount of time that person spends reading books increases.
- D As a person's height increases, the amount of time that person spends reading books decreases.

11. The weight of baseball is 0.3125 grams. How can you write this as a fraction?

- A $\frac{1}{6}$ g.
- B $\frac{3}{10}$ g.
- C $\frac{5}{16}$ g.
- D $\frac{3}{8}$ g.

13. Elephants can run at speeds up to 11.2 meters per second. At this rate, how far can an elephant run in 5.5 seconds?

- A 40.5 m
- B 48.3 m
- C 61.6 m
- D 68.2 m

14. The equation $0.025 = \frac{w}{696,000}$ can be solved to

approximate the number of square kilometres of inland water in southern Ontario. About how much inland water is there?

- A 17,400 km^2
- B 20,500 km^2
- C 28,180 km^2
- D 35,150 km^2

QUESTION #	#10	#11	#12	#13	#14
ANSWER					

15. The table shows what portion of each class attended volunteer day. Which of the following shows the fractions in order from least to greatest?

Grade	Portion in Attendance
6th	$\frac{2}{3}$
7th	$\frac{5}{8}$
8th	$\frac{4}{5}$

A $\frac{5}{8}, \frac{4}{5}, \frac{2}{3}$

B $\frac{2}{3}, \frac{5}{8}, \frac{4}{5}$

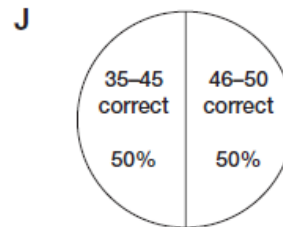
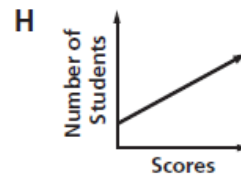
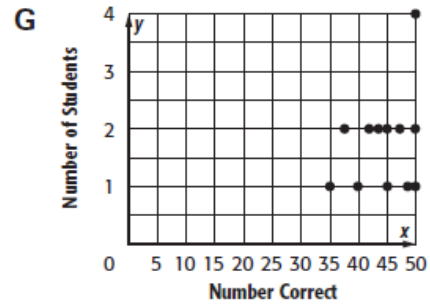
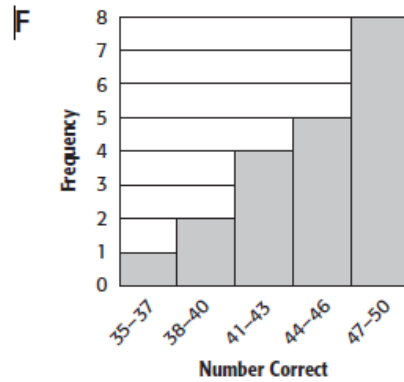
C $\frac{4}{5}, \frac{2}{3}, \frac{5}{8}$

D $\frac{5}{8}, \frac{2}{3}, \frac{4}{5}$

16. The science test scores for 20 students are listed below.

48, 49, 50, 46, 47, 47, 35, 38, 40, 42, 45, 47, 48, 44, 43, 46, 45, 42, 43, 47

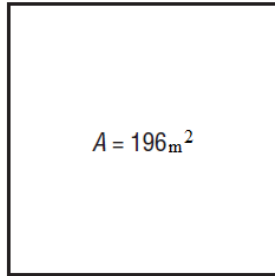
Which of these displays matches these data?



QUESTION #	#15	#16
ANSWER		

17. Tien's family room is shaped like a square and has the area shown at the right. If she wants to install new baseboard around the perimeter of the room, how many linear feet of baseboard will she need?

- A 28m
- B 36m
- C 52m
- D 56m



18. The diameter of the Texas state seal in the diagram below is approximately 2 cm. What is the approximate circumference of the seal?

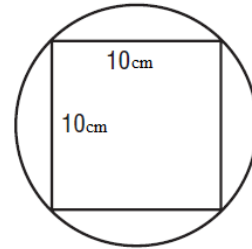
- A 3.14 cm
- B 6.28 cm
- C 12.56 cm
- D 14 cm



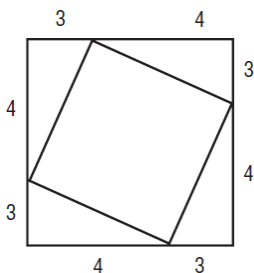
19. A carpenter determines the length of a beam to be $\sqrt{45}$ m. Between which two integers does this length lie on a number line?
- A Between 6 and 7m
 - B Between 7 and 8m
 - C Between 8 and 9m
 - D Between 9 and 10m

20. Lucas is cutting a 10- cm by 10- cm square pizza from a circular pizza as shown in the diagram. About what size is the smallest diameter of circular pizza from which Lucas can cut a square pizza?

- A 10 cm
- B 12 cm
- C 14 cm
- D 18 cm

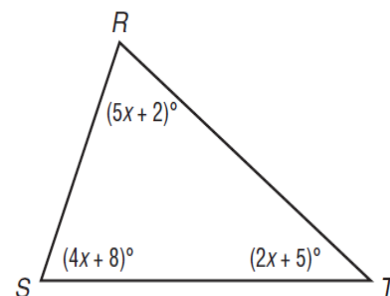


21. The figure below shows a square inside a larger square. What is the area of the smaller square?



- A 9 units²
- B 25 units²
- C 36 units²
- D 49 units²

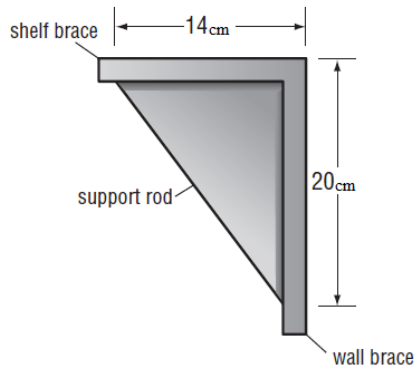
22. What is the measure of $\angle S$ in the figure?



- A 55°
- B 59°
- C 68°
- D 74°

QUESTION #	#17	#18	#19	#20	#21	#22
ANSWER						

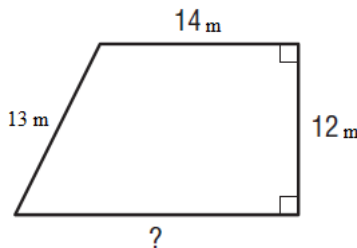
23. The diagram shows the side view of a support bracket used with a bookshelf.



What is the approximate length of the support rod?

- F 6 cm
- G 18 cm
- H 24 cm
- J 28 cm

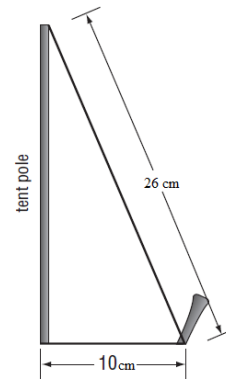
25. Abdul is putting a fence around his garden to keep rabbits away from the vegetables. The diagram below shows the perimeter of the garden.



Abdul measured three sides of the garden but his measuring tape was not long enough to measure the fourth side. What is the garden's perimeter?

- A. 19m
- B. 39m
- C. 48m
- D. 58m

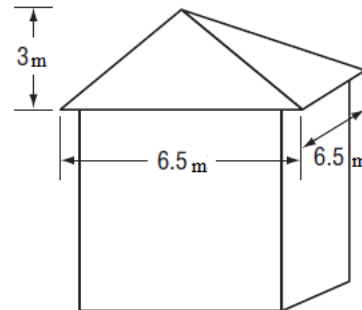
24. A 26 cm rope is used to brace a tent pole at a campground. The rope is anchored 10 cm from the base of the pole.



How tall is the tent pole?

- A 21.8 cm
- B 24 cm
- C 28 cm
- D 30 cm

26. Mason is planning to add shingles to the roof of his shed as shown.

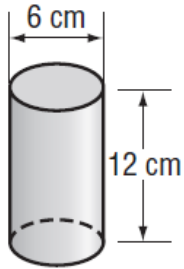


What is the area of the roof that he needs to shingle?

- A 39m^2
- B $42\frac{1}{4}\text{m}^2$
- C 52m^2
- D $81\frac{1}{4}\text{m}^2$

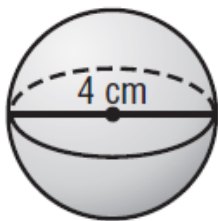
QUESTION #	#23	#24	#25	#26
ANSWER				

27. The diagram below shows a can of juice. What is the approximate surface area of the can?



- A. 188 cm^2
- B. 240 cm^2
- C. 282 cm^2
- D. 300 cm^2

29. The diameter of a table tennis ball is 4 centimeters. How many square centimeters of plastic are needed to make a table tennis ball?

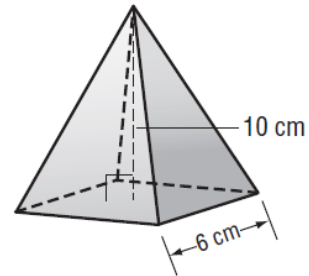


- A 42.4 cm^2
- B 50.3 cm^2
- C 77.6 cm^2
- D 201.1 cm^2

31. A block of wood is shaped like a rectangular prism with dimensions ℓ , w , and h . If a hole is drilled out of the middle of the prism with radius r , which expression can be used to find the volume of the remaining wood?

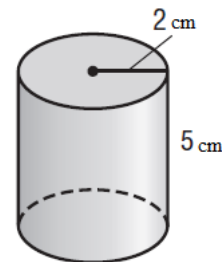
- A $\ell wh + \pi r^2 h$
- B $\ell wh + 2\pi rh$
- C $\ell wh - \pi r^2 h$
- D $\ell wh - 2\pi rh$

28. What is the volume of the square pyramid shown below?

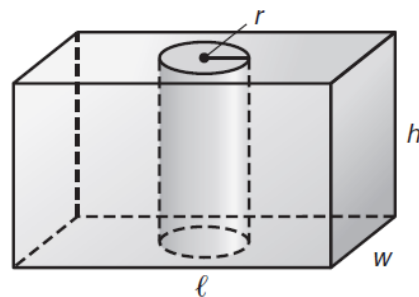


- A. 30 cm^3
- B. 60 cm^3
- C. 120 cm^3
- D. 360 cm^3

30. How many square cm of paper are needed to cover the lateral area of the soup can shown below?



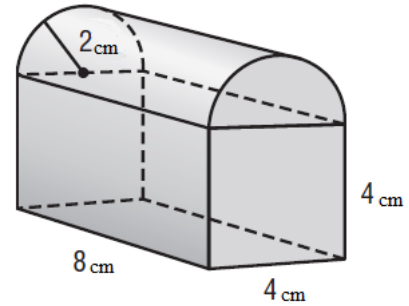
- F 62.8 cm^2
- G 68.5 cm^2
- H 72.3 cm^2
- J 76.6 cm^2



QUESTION #	#27	#28	#29	#30	#31
ANSWER					

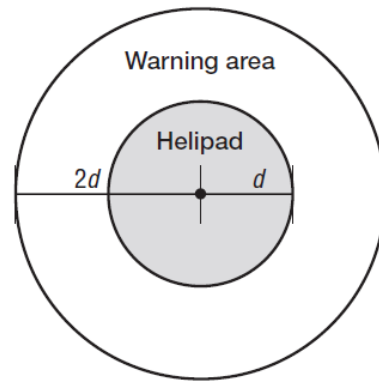
32. Anthony's lunch box is shaped like a rectangular prism with half of a cylinder on top. What is the total volume of the lunch box? Round your answer to the nearest whole number.

A 142cm^3 **C** 165cm^3
B 153cm^3 **D** 178cm^3



33. A circular helipad has a circumference of 63 m. What is the circumference of the circular warning area, whose diameter is twice that of the helipad?

A. 110 m
 B. 126 m
 C. 252 m
 D. 504 m



34. A cardboard company makes two different sizes of boxes in the shape of rectangular prisms. The smaller box has a volume of 144cm^3 . The dimensions of the larger box are twice those of the smaller box. What is the volume of the larger box?
- A. 288cm^3
 B. 576cm^3
 C. 1152cm^3
 D. 2304cm^3

QUESTION #	#32	#33	#34
ANSWER			