

PAT 6 - Measurement estimation & conversion

Name: _____

Date: _____

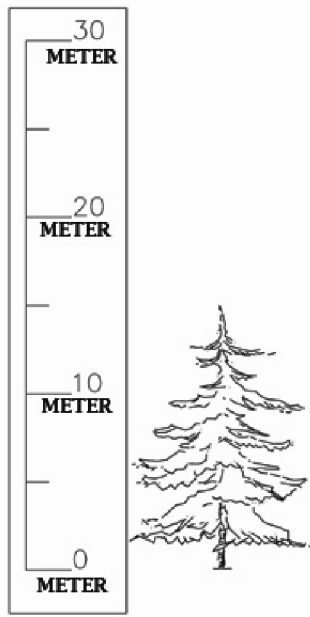
1. A factory makes steel plates that are $30\text{ mm} \pm 2\text{ mm}$ thick. These plates are in stacks of 100. Which of these is most likely the height of one stack?
- A. 2.4 meters B. 3.1 meters C. 4.0 meters D. 4.5 meters



What is the smallest division on this ruler?

- A. $\frac{1}{4}$ inch B. $\frac{1}{8}$ inch C. $\frac{1}{10}$ inch D. $\frac{1}{16}$ inch
3. Jackie worked on her homework from 4:48 pm until 5:25 pm. She then spent 47 minutes eating dinner before beginning to work on her homework again. Jackie finished her homework at 6:24 pm. What is the total amount of time Jackie worked on her homework?
- A. 37 minutes B. 49 minutes C. 1 hour 29 minutes D. 1 hour 36 minutes
4. Nathan, Carmen, Vanessa, and Kari timed a snail to see how far it traveled in 10 minutes. It moved 12 inches. They wanted to figure out how long the snail would take to travel one mile. Nathan said there were 5,280 feet in a mile. What could the students do to determine how many hours it would take the snail to go one mile?
- A. They could divide 5,280 feet by 10 to get 528 minutes, then multiply by 12, and divide by 6.
B. They could divide 10 minutes into 60 to get 6 feet per hour, then divide 5,280 feet by 6.
C. They could multiply 10 minutes by 12 inches, then multiply by 5,280 feet and divide by 60.
D. They could divide 5,280 feet by 10 to get 528 minutes, then multiply by 60 and divide by 24.
5. Peter is traveling 3.5 kilometers to Sophie's house. How many meters does Peter have to travel?
- A. 0.0035 B. 0.035 C. 350 D. 3,500
6. Michelle bought a 2-liter bottle of soda to share with her 4 friends. She poured all the soda into 5 glasses with an equal amount in each glass. How much soda is in 1 glass?
- A. 0.4 milliliter B. 4 milliliters C. 40 milliliters D. 400 milliliters

7. The tree is 15 meters tall.



How tall is the tree in centimeters?

- A. 0.015 cm B. 150 cm C. 1,500 cm D. 15,000 cm





8. The shrew is the tiniest mammal in the world. Its mass is approximately 1.988 grams. How many milligrams is this?

- A. 198.8 milligrams B. 1,988 milligrams C. 19,880 milligrams D. 198,800 milligrams

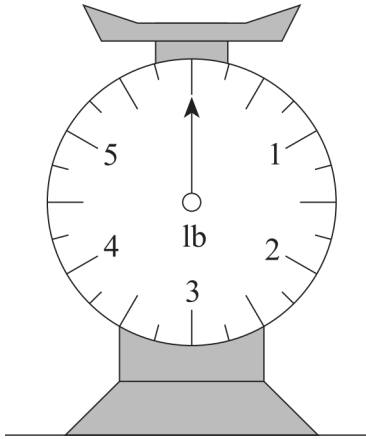
9. Titus went to the pet store to buy the following items for his dog.

- Ball \$1.73
- Chew Bone \$4.29
- Leash \$7.55
- Shampoo \$2.29

Which of the following is the least amount of money needed to pay for all of his items?

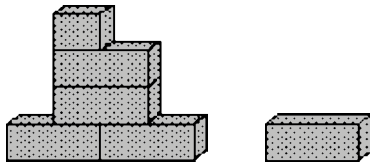
- A.  B. 
- C.  D. 

10. In this picture of a scale, what does each of the smallest divisions represent?



- A. $\frac{1}{4}$ pound B. $\frac{1}{2}$ pound C. $\frac{1}{10}$ pound D. 1 pound

11.

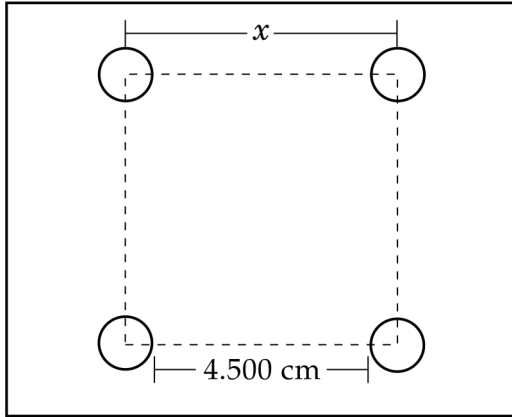


Molly's Pile 1 brick = 4 kg

About how many more bricks does Molly need to add to her pile to equal 50 kilograms?

- A. 7 B. 8 C. 45 D. 46
12. A paper clip weighs *about* how much?
- A. 1 kilogram B. 1 gram C. 10 kilograms D. 10 grams
13. Dana has three coins in her pocket.
No two coins have the same value.
What is the *least* amount of money Dana could have in her pocket?
- A. 3¢ B. 11¢ C. 16¢ D. 40¢

14. Each hole in the board below has a diameter of 1.250 centimeters. The center of each hole is the vertex of a square.



Note: The figure is not drawn to scale.

What is the length (x) of each side of the square?

- A. 4.500 centimeters B. 5.125 centimeters C. 5.750 centimeters D. 7.000 centimeters
15. Use the information in the table below to answer the following question.

Story World

Title of Show	Show Begins	Length of Show
<i>Cinderella</i>	10:30 am	30 Minutes
<i>Heidi</i>	11:30 am	30 Minutes
<i>Jack and the Beanstalk</i>	12:45 am	1 Hours
<i>The Three Little Pigs</i>	2:00 am	30 Minutes

How much time is there between the end of the Cinderella show and the beginning of the Heidi show?

- A. 10 minutes B. 15 minutes C. 30 minutes D. 60 minutes

16. Lisa has three jobs: walking the family dog, washing the dishes, and vacuuming.

- She walks the family dog once every 3 days.
- She washes the dishes once every 4 days.
- She vacuums once every 6 days.

The calendar below shows that Lisa did all three jobs on Monday the 2nd.

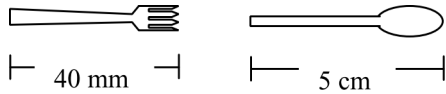
Calendar

S	M	T	W	Th	F	S
1	Dog Dishes Vacuum	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

On which day will Lisa again do all three jobs on the same day?

- A. Thursday the 5th B. Saturday the 14th C. Wednesday the 18th D. Tuesday the 24th

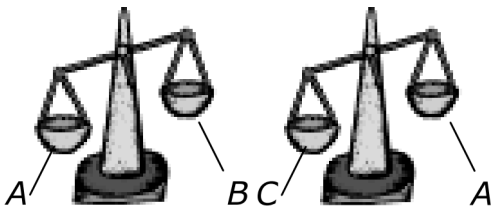
17. The picture below shows the lengths of two items.



Based on the picture, which of these statements is true?

- A. The spoon is shorter than the fork. B. The fork is longer than the spoon.
 C. The fork and spoon are the same length. D. The spoon is longer than the fork.

18. Use the figures below to answer the following question.



The weights of three objects were compared using a pan balance. Two comparisons were made as shown in the figure above. Which object is the heaviest?

- A. A B. B
 C. C D. Not enough information is given.

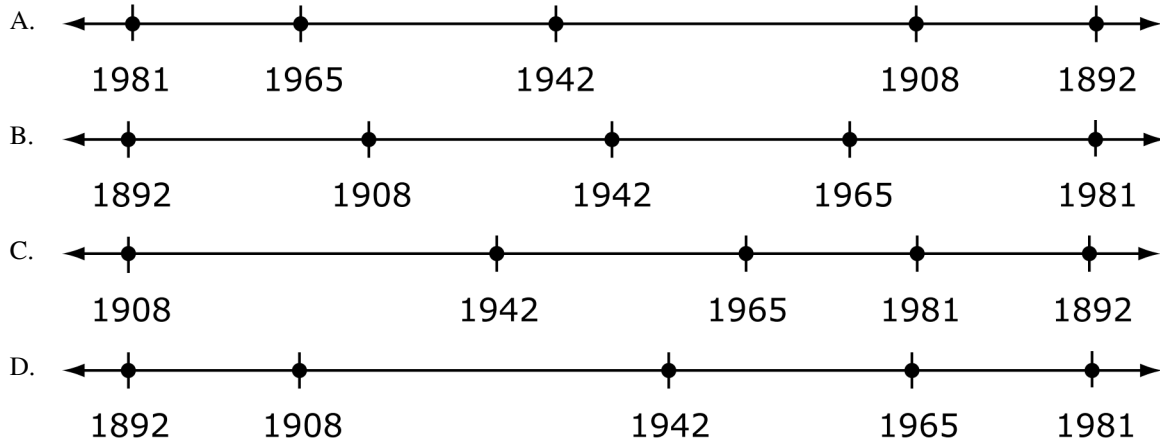
19. The mass of 1 sugar cube is 2 **grams** (g). How many **kilograms** (kg) is the mass of 550 sugar cubes? (1 kg = 1000 g)
- A. 0.011 kg B. 0.11 kg C. 1.1 kg D. 11 kg
20. Valley View Hospital received a shipment of flu shots. The total shipment is 1 liter. Each flu shot is 5 milliliters. How many shots can the hospital provide?
- A. 20 B. 100 C. 200 D. 500
21. You may use this calendar to help you answer this question.

April						
Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

On April 1, Molly had a guitar lesson and a piano lesson. She has a guitar lesson every 8 days and a piano lesson every 12 days. What is the next date that Molly will have *both* a guitar lesson and a piano lesson?

- A. April 13 B. April 17 C. April 21 D. April 25
22. Donny has 18 coins that total 75¢. What coins could he have?
- A. 2 quarters, 1 dime, 15 pennies B. 1 quarter, 4 dimes, 2 nickels, 10 pennies
- C. 2 quarters, 2 dimes, 5 pennies D. 1 quarter, 3 dimes, 4 nickels, 10 pennies

23. A student creates a time line for a history project. Which shows a time line?



24. Julie used her ruler to measure the pencil below. She used 2 different units of measurement.



Which of these could be the 2 different units of measurement that Julie used?

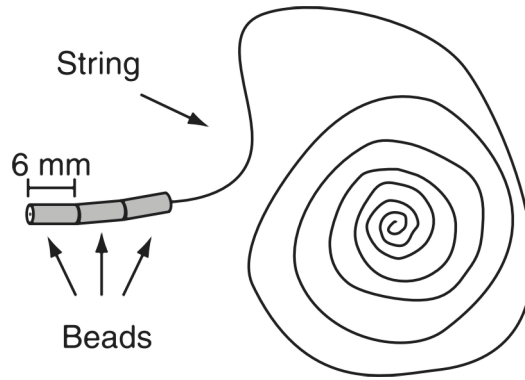
- A. 120 millimeters and 12 centimeters B. 12 millimeters and 120 centimeters
C. 120 centimeters and 12 meters D. 12 centimeters and 120 meters

25. John prepared 3 liters of tomato soup for his anniversary party. He has to serve the soup to each guest. A soup bowl holds 200 milliliters of soup. How many soup bowls will he be able to fill?

- A. 15 bowls B. 66 bowls C. 150 bowls D. 600 bowls



26. Nadia is putting beads on a piece of string, as shown below.



Each bead is 6 mm long. What is the greatest number of beads Nadia can put on a 60 cm string? [1 cm = 10 mm]

- A. 10 B. 36 C. 100 D. 3600

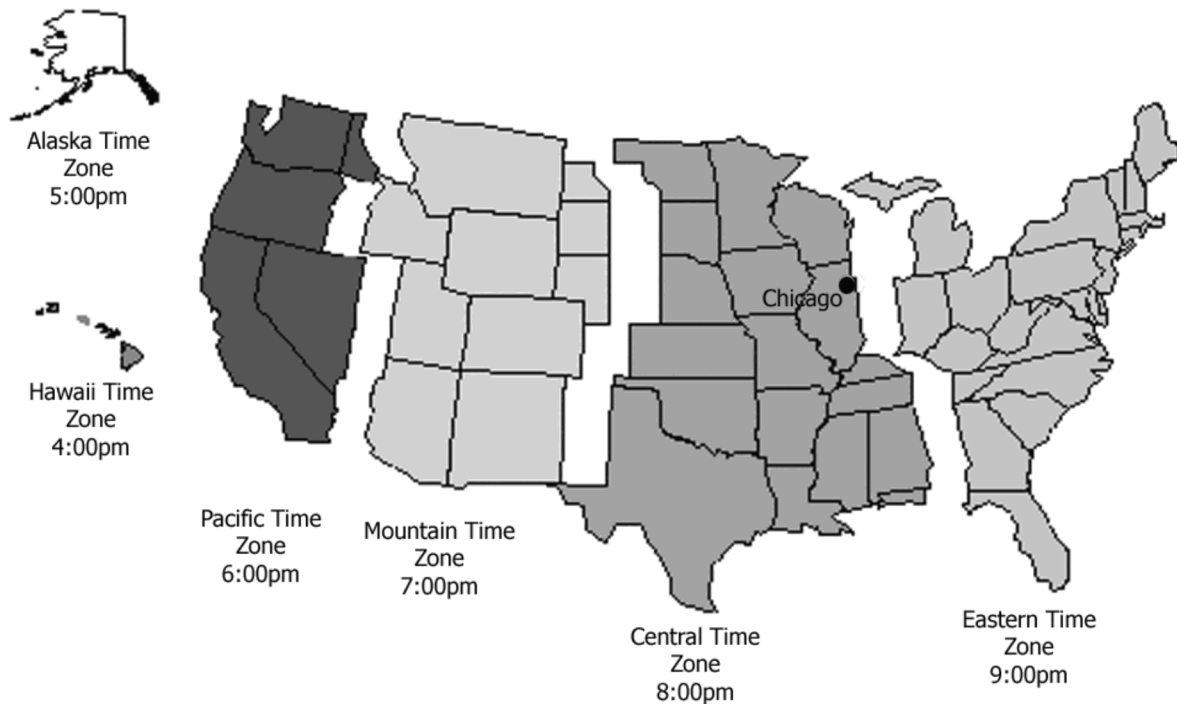
27. Joseph bought a 2-liter bottle of juice. How many milliliters (mL) of juice did Joseph buy?

- A. 2 mL B. 20 mL C. 200 mL D. 2000 mL

28. Jill is flying from Anchorage, Alaska to Key Largo, Florida. Her plane leaves Anchorage at 5:00 am and her flight lasts 8 hours. The time in Florida is 4 hours later than in Alaska. What time will Jill arrive in Key Largo, Florida?

- A. 1:00 am B. 9:00 am C. 1:00 pm D. 5:00 pm

29.



Jon lives in Alaska, which uses Alaska Standard Time. He wants to call his Grandmother to wish her a 'Happy Birthday.' She lives in Chicago, Illinois, which uses Central Standard Time. If he calls his grandmother at 11:15 AM Alaska time, what time will his grandmother receive the call in Chicago?

- A. 2:15 AM B. 11:15 AM C. 1:15 PM D. 2:15 PM

30. Charles' pet snake was 0.9 meters long one week ago. In 7 days it grew 16 centimeters.
How long is the snake now?

- A. 0.916 meters B. 1.06 meters C. 16.9 meters D. 25 meters

31. Which of the following masses is the smallest?

- A. 4 centigrams B. 40 grams C. 0.4 kilogram D. 400 milligrams

32. Which of the following distances is the *longest*?

- A. 2 kilometers B. 500 centimeters C. 2,300 meters D. 25,000 millimeters

33. How many millimeters are in 20 centimeters?

- A. 0.02 millimeters B. 0.2 millimeters C. 200 millimeters D. 20,000 millimeters

34. One dollar bill has a mass of approximately 1 gram. What is the approximate mass of a stack of 2000 dollar bills?

- A. 2 milligrams B. 2 kilograms C. 20 kilograms D. 200 centigrams

35. Jeremy ran 440 meters each day for 5 days during physical education class.

How many total kilometers did he run during these 5 days?

- A. 2.2 B. 22 C. 220 D. 2200

36. Graham practiced piano for 135 minutes this morning. He practiced for 65 more minutes this afternoon. Altogether, Graham practiced 10 times longer today than he practiced yesterday. How many minutes did Graham practice piano yesterday?

- A. 2 B. 20 C. 200 D. 2000

37. *In April of each year, a 26.2-mile race is held in Boston. The 100th Boston Marathon was run in 1996. Record numbers of runners participated in the race—about 38,700 officially registered runners plus about 2,000 other people who also participated. The following are facts about the Marathon.*

Category	Winner	Time
Men	Moses Tanui	2 h, 9 min, 16 sec
Women	Uta Pippig	2 h, 27 min, 13 sec
Wheelchair (Women)	Jean Driscoll	1 h, 52 min, 54 sec
Wheelchair (Men)	Heinz Frei	1 h, 30 min, 11 sec

Which is the best estimate of Moses Tanui's average speed for the entire marathon in miles per hour?

- A. less than 9 mph B. about 12 mph C. about 15 mph D. more than 17 mph

38. One millimeter is—

- A. $\frac{1}{1000}$ of a meter. B. $\frac{1}{100}$ of a meter. C. 100 meters. D. 1000 meters.

39. Sheila's flight from Los Angeles to New York departs at 8:12 am. The flight will take 5 hours. The time in New York is 3 hours later than the time in Los Angeles. What time will it be in New York when Sheila's airplane lands?

- A. 11:12 am B. 1:12 pm C. 3:12 pm D. 4:12 pm

40. How can grams be converted to kilograms?

- A. multiply by $\frac{1 \text{ kg}}{1000 \text{ g}}$ B. multiply by $\frac{1000 \text{ kg}}{1 \text{ g}}$ C. multiply by $\frac{100 \text{ kg}}{1 \text{ g}}$ D. multiply by $\frac{1 \text{ kg}}{100 \text{ g}}$

41. Human hair can grow an average of 1.27 centimeters every month.

Which shows this length in millimeters?

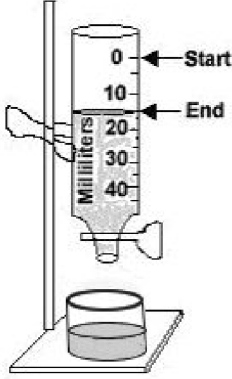
- A. 0.127 millimeter B. 12.7 millimeters C. 127 millimeters D. 1270 millimeters

42. Julia ran a 6-kilometer race on a 400-meter oval track.

How many laps around the track did Julia run?

- A. 0.15 lap B. 1.5 laps C. 15 laps D. 150 laps

43.



In the figure above, the tube was filled to the 0 mark at the start. How much liquid has been let out?

- A. 10 milliliters B. 15 milliliters C. 25 milliliters D. 40 milliliters

44. Akira has 6.5 **liters** of soda to serve at a party. She pours an equal amount of soda into each glass she places on a table. By the time she has filled 3 glasses, she has poured a total of 1200 **milliliters** of soda. What is the greatest number of additional glasses that Akira can completely fill with soda?

- A. 5 glasses B. 8 glasses C. 13 glasses D. 18 glasses

45. Juliana has two pieces of rope.

- The first piece is $1\frac{1}{2}$ meters long.
- The second piece is 2 meters long.

What is the total length, **in centimeters**, of the two pieces of rope?

- A. 300 centimeters B. 350 centimeters C. 3000 centimeters D. 3500 centimeters