SC Math Standards: Grade 8 - Sample Questions
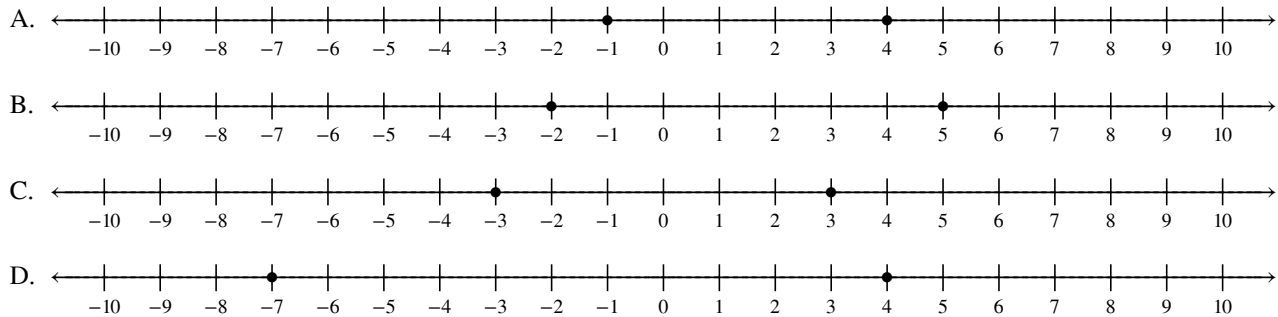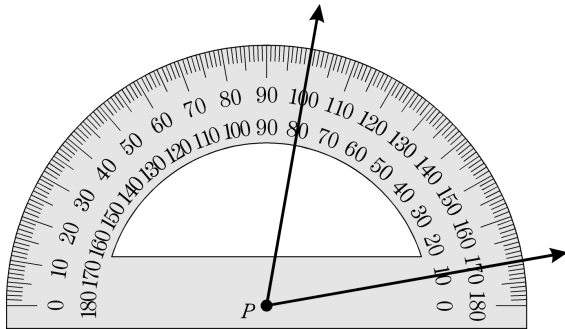
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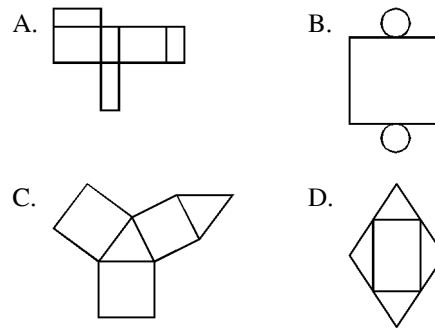1. Which of the number lines show opposite numbers?

A.

B.

C.

D.

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2. Angle *P* is shown on the protractor.

What is the measure of angle *P* to the nearest degree?

A. 90°, because 170° minus 80° equals 90°

B. 70°, because 170° minus 100° equals 70°

C. 110°, because 100° plus 10° equals 110°

D. 90°, because 100° minus 10° equals 90°

3. Which net, when folded, will form a triangular prism?

A.   B.

C.   D.

4. The table shows the dimensions of four different rectangular steel containers.

Determine the volume of each container to complete the table.

Length	Width	Height	Volume
3 cm	5 cm	8 cm	cm³
10 in.	6 in.	4 in.	in³
6 yd	2 yd	3 yd	yd³
5 m	2 m	10 m	m³

5. The following tables give information about the weekly number of pizzas sold at two outlets of the Pisa Pizza Factory.

Outlet A	
minimum pizzas	394
lower quartile	429
median	448
upper quartile	470
maximum pizzas	513

Outlet B	
minimum pizzas	312
lower quartile	330
median	346
upper quartile	362
maximum pizzas	408

Select the 2 statements that are true about the number of pizzas sold at each outlet.

○ At least 75% of the time outlet A sells more than outlet B.

○ The number of pizzas sold by outlet B is increasing weekly.

○ The range of outlet A is greater than the range of outlet B.

○ Outlet A always sells more than outlet B.

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6. For each angle in the table, write the measure of its complement and supplement.

	Compl. angle	Suppl. angle
27°	_____ °	_____ °
30°	_____ °	_____ °
80°	_____ °	_____ °
89°	_____ °	_____ °

7. John buys a car that gets 30 miles to a gallon of gasoline. If he has a fifteen gallon gas tank, how many miles can he go on a tank of gas?

Gallons of gas	3	6	9	12	15	18
Miles		90	180	270	360	?	540

A. 390   B. 420   C. 450   D. 480

8. The quality management team examined a sample of calculators to test for accuracy. They found that identical calculators produced two different answers for the same math problem.

| 6 ÷ 2(1+2) |
|---|
| 1 |

Calculator A

6 ÷ 2(1+2)
9

Calculator B

Which calculator is correct? Give an explanation based on order of operation. Use grouping symbols to show how each calculator produced the answer.

9. An unusual square dart board contains shaded and unshaded areas. If the dart is thrown without looking, and lands on the dart board, what is the probability that it will land on a shaded area?

A. $\frac{8}{16}$ B. $\frac{7}{16}$

C. $\frac{5}{8}$ D. $\frac{3}{8}$
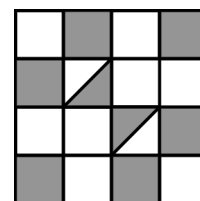
10. Which group contains ratios that are *all* equivalent to $\frac{1}{4}$?

   A. $\frac{2}{3}, \frac{3}{4}, \frac{4}{4}$ B. $\frac{1}{5}, \frac{1}{6}, \frac{1}{7}$

   C. $\frac{2}{4}, \frac{4}{8}, \frac{5}{10}$ D. $\frac{2}{8}, \frac{3}{12}, \frac{5}{20}$

11. The formula for finding the amount in a savings account after t years is given by the formula $A = p(1 + rt)$, where p is the initial amount deposited and r is the annual interest rate (as a decimal). Using this formula, determine how much Ms. Watson has in her account, if she saved $290 for 1 year at $6\frac{1}{2}\%$?

   A. $283.50   B. $308.85

   C. $325.40   D. $407.75

12. A squirrel climbed 15 meters up a tree, then 7 meters down, then 3 more meters down, and finally 11 meters up. What number sentence would represent this situation?

   A. $15 + -7 + -3 + 11 = \square$

   B. $15 + -7 + -3 + -11 = \square$

   C. $-15 + 7 + -3 + 11 = \square$

   D. $15 + 7 + 3 + 11 = \square$

13. Complete the table for the relation $\frac{2}{3}x + \frac{3}{5}y = 30$.

| x	18	−27	9			
y				70	0	120

14. A fair coin is flipped four times.

   a) Draw a tree diagram or make a list to show all possibilities for the four coin flips.

   b) What is the probability that at least two of the flips were heads?

15. Frances has two dimes and one nickel in her purse. The purse has a hole in it, and a coin drops out. Frances picks up the coin and puts it back in her purse. A few minutes later, a coin drops out of her purse again.

   a) Draw a tree diagram or list the sample space for all possible pairs that are outcomes to describe the coins that fell.

   b) What is the probability that the same coin fell out of Frances' purse both times?

   c) What is the probability that the two coins that fell have a total value of $0.15?

   d) What is the probability that a dime fell out at least once?

16. In the figure, $\overline{DE} \parallel \overline{BC}$.
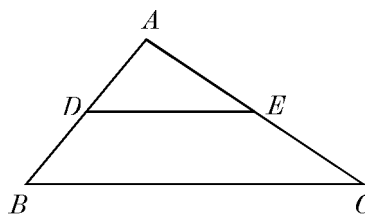
   Based on the figure, indicate whether each proportion is true or false.

	True	False
$\dfrac{AB}{BC} = \dfrac{AE}{ED}$	○	○
$\dfrac{AD}{BA} = \dfrac{AE}{CA}$	○	○
$\dfrac{AD}{AE} = \dfrac{AB}{AC}$	○	○
$\dfrac{AD}{DB} = \dfrac{AE}{AC}$	○	○
$\dfrac{DB}{EC} = \dfrac{BA}{CA}$	○	○

17. Insert a rational and an irrational number between the following decimals.

   $1.274\overline{4}$
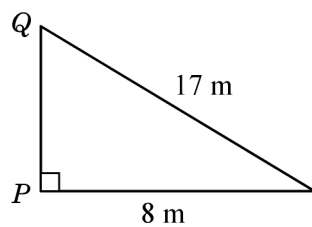
   _____ (rational)

   _____ (irrational)

   $1.274\overline{274}$

18. What is the volume of the cone if the area of the base is $147\,\text{cm}^2$ and the height is $9\,\text{cm}$? $[V = \frac{1}{3}\pi r^2 h]$

A. $21\,\text{cm}^3$

B. $147\,\text{cm}^3$

C. $189\,\text{cm}^3$

D. $441\,\text{cm}^3$
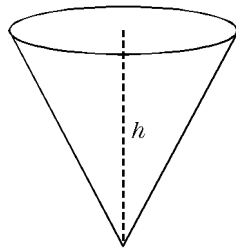
19. In the right triangle shown, what is the length of $\overline{PQ}$?

A. $4\,\text{m}$

B. $8.5\,\text{m}$

C. $15\,\text{m}$

D. $25\,\text{m}$

20. Which of the following is the graph of $10x + y = -5$?

A.

B.

C.

D.
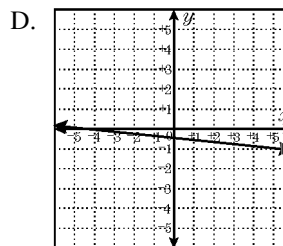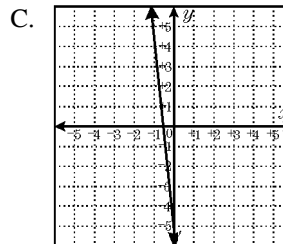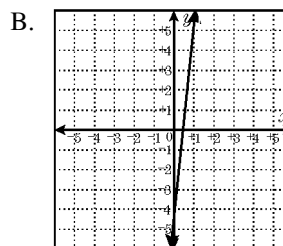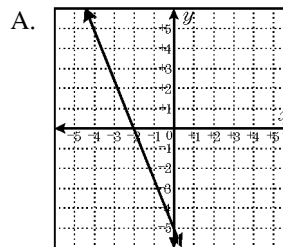
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1.
Answer: C
Objective: 6.NR.2.4
Points: 1

2.
Answer: B
Objective: 6.MGSR.2.2
Points: 1

3.
Answer: C
Objective: 6.MGSR.1.2
Points: 1

4.
Answer: 120,240,36,100
Objective: 6.MGSR.1.5
Points: 1

5.
Answer: 1,3
Objective: 8.DPSR.1.4
Points: 1

6.
Answer: 63,153,60,150,10,100,1,91
Objective: 7.MGSR.2.3
Points: 1

7.
Answer: C
Objective: 6.PAFR.2.8
Points: 1

8.
Answer: Calculator B: parentheses first, then multiply and divide from left to right
Calculator A: $6 \div [2(1 + 2)] = 6 \div [2(3)] = 6 \div 6 = 1$
Calculator B: $(6 \div 2)(1 + 2) = (3)(3) = 9$
Objective: 6.PAFR.3.5
Points: 1

9.
Answer: B
Objective: 7.DPSR.2.2
Points: 1

10.
Answer: D
Objective: 7.PAFR.1.2
Points: 1

11.
Answer: B
Objective: 7.PAFR.2.1
Points: 1

12.
Answer: A
Objective: 7.PAFR.3.5
Points: 1

13.
Answer: 18,45,-63,30,80,40
Objective: 8.PAFR.1.1
Points: 1

14.
Answer: [chart]; $\frac{11}{16}$
Objective: 8.DPSR.2.2
Points: 1

15.
Answer: [chart]; $\frac{3}{9}$; $\frac{4}{9}$; $\frac{8}{9}$
Objective: 8.DPSR.2.2
Points: 1

16.
Answer: [2],[1],[1],[2],[1]
Objective: 8.MGSR.2.5
Points: 1

17.
Answer: [answers vary]
Objective: 8.NR.2.1
Points: 1

18.
Answer: D
Objective: 8.MGSR.1.1
Points: 1

19.
Answer: C
Objective: 8.MGSR.1.3
Points: 1

20.
Answer: C
Objective: 8.PAFR.1.1
Points: 1