

SECTION 2: QUANTITATIVE REASONING**35 minutes • 20 questions***(The paper-and-pencil version will have 25 questions to be completed in 40 minutes.)*

For each question, follow the specific directions and choose the best answer.

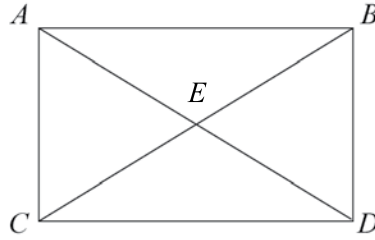
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- Coordinate systems, such as xy -planes and number lines, *are* drawn to scale. Therefore, you can read, estimate, or compare quantities in such figures by sight or by measurement.
- Graphical data presentations, such as bar graphs, circle graphs, and line graphs, *are* drawn to scale. Therefore, you can read, estimate, or compare data values by sight or by measurement.

FOR QUESTIONS 1–8, COMPARE QUANTITY A AND QUANTITY B. SOME QUESTIONS WILL HAVE ADDITIONAL INFORMATION ABOVE THE TWO QUANTITIES TO USE IN DETERMINING YOUR ANSWER.

1. Quantity A Quantity B
- $6\frac{7}{8}$ 3.42(2)
- (A) Quantity A is greater.
 (B) Quantity B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

QUESTIONS 2–4 REFER TO THE DIAGRAM BELOW.



$ABCD$ is a rectangle.

E is the intersection of AD and BC .

2.

<u>Quantity A</u>	<u>Quantity B</u>
the area of $\triangle CED$	the area of $\triangle AEC$
- (A) Quantity A is greater.
 (B) Quantity B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.
3.

<u>Quantity A</u>	<u>Quantity B</u>
$m\angle ACD + m\angle CDB$	$m\angle AEC + m\angle CED$
- (A) Quantity A is greater.
 (B) Quantity B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.
4.

<u>Quantity A</u>	<u>Quantity B</u>
$(AB)^2 + (BD)^2$	AD
- (A) Quantity A is greater.
 (B) Quantity B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.
- $y < x < 0$
5.

<u>Quantity A</u>	<u>Quantity B</u>
$ x $	$ y $
- (A) Quantity A is greater.
 (B) Quantity B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

$$a > b > 0$$

6.

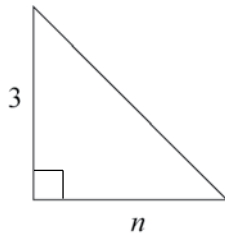
Quantity A

$$a^2 - b^2$$

Quantity B

$$(3a + 3b)(-2a + 2b)$$

- (A) Quantity A is greater.
(B) Quantity B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the information given.



The area of the triangle is 15.

7.

Quantity A

$$n$$

Quantity B

$$12$$

- (A) Quantity A is greater.
(B) Quantity B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the information given.

$$x^2 = 9$$

8.

Quantity A

$$x$$

Quantity B

$$-3$$

- (A) Quantity A is greater.
(B) Quantity B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the information given.

Questions 9–20 have several formats. Unless the directions state otherwise, choose one answer choice. For Numeric Entry questions, follow the instructions below.

Numeric Entry Questions

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- Your answer may be an integer, a decimal, or a fraction, and it may be negative.
- If a question asks for a fraction, there will be two boxes. One box will be for the numerator and one will be for the denominator.
- Equivalent forms of the correct answer, such as 2.5 and 2.50, are all correct.
- Enter the exact answer unless the question asks you to round your answers.

9. The local pastry shop sells its doughnuts for \$1.90 each, and the shop owner makes an 8% profit on each. How much profit would the owner make if she sold 15 doughnuts?
- (A) \$0.15
(B) \$2.28
(C) \$28.50
(D) \$1.12
(E) \$3.45
10. Evaluate $\frac{13(0.2)}{4}$
- (A) 0.0065
(B) 0.065
(C) 65
(D) 6.5
(E) 0.65

FOR QUESTION 11, INDICATE ALL THE ANSWERS THAT APPLY.

11. Find the next 3 numbers in the sequence. 1, 1, 2, 3, 5, 8,
- (A) 12
(B) 13
(C) 14
(D) 21
(E) 22
(F) 33
(G) 34
(H) 55

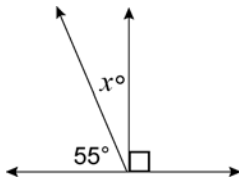
12. Let $f(x) = 2x^3 - x^2 + 7$. Find $f(3)$.

- (A) 25
- (B) 19
- (C) 16
- (D) 52
- (E) 54

13. Solve for x : $4(3x - 5) = x + 3$

- (A) $x = \frac{23}{11}$
- (B) $x = \frac{8}{11}$
- (C) $x = \frac{2}{3}$
- (D) $x = -4$
- (E) $x = 23$

14. Find the value of x .



- (A) 55°
- (B) 35°
- (C) 90°
- (D) 145°
- (E) 125°

FOR QUESTION 15, INDICATE ALL THE ANSWERS THAT APPLY.

15. List all the factors of 51.

- (A) 1
- (B) 2
- (C) 3
- (D) 7
- (E) 16
- (F) 17
- (G) 48
- (H) 51

QUESTIONS 16–18 ARE BASED ON THE FOLLOWING DATA.

Annual State Budgets (in millions of dollars)

	2007	2008	2009	2010	2011	2012, est
State A	53.0	75.9	85.5	101.6	131.2	142.1
State B	14.4	14.5	20.0	19.0	39.2	43.5

16. What is the ratio of the total (State A + State B) estimated budget of 2012 to 2007's budget?
- (A) 33.7 : 92.8
(B) 142.1 : 53.0
(C) 43.5 : 14.4
(D) 14.4 : 43.5
(E) 92.8 : 33.7
17. What is the total budget for State A for 2007, 2008, and 2011?
- (A) 68.1
(B) 260.1
(C) 268
(D) 276.4
(E) 308.7
18. What year had the biggest percentage increase from the previous year in State B and what was the percentage increase?
- (A) 2009, 138%
(B) 2011, 206%
(C) 2009, 37%
(D) 2011, 106%
(E) 2012, 11%

FOR QUESTIONS 19–20, ENTER YOUR ANSWERS IN THE BOXES.

19. Mary went to the convenience store with \$20. She wanted to buy a newspaper for \$1.25, a magazine for \$6.50, a soda for \$1.75, and then spend the rest of her \$20 on dime candy. How many pieces would she get?

20. Using the information from the question above, find the ratio of the amount of money spent for the magazine to the total amount of money spent.

Give your answer as a fraction.

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STOP

If you finish before the time is up, you may check your work in this section only.

SECTION 5: QUANTITATIVE REASONING**35 minutes • 20 questions***(The paper-and-pencil version will have 25 questions to be completed in 40 minutes.)*

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FOR QUESTIONS 1–8, COMPARE QUANTITY A AND QUANTITY B. SOME QUESTIONS WILL HAVE ADDITIONAL INFORMATION ABOVE THE TWO QUANTITIES TO USE IN DETERMINING YOUR ANSWER.

- | | | |
|----|-------------------|-------------------|
| 1. | <u>Quantity A</u> | <u>Quantity B</u> |
| | 0.324875 | $\frac{10}{31}$ |
- (A) Quantity A is greater.
 (B) Quantity B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

2.	<u>Quantity A</u>	<u>Quantity B</u>
	$ x $	$ y $

- (A) Quantity A is greater.
- (B) Quantity B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

Mary is twice as old as Stephen. Stephen is 5 years older than Joe. Joe is $\frac{3}{4}$ of Mary's age. All three were born in the twenty-first century.

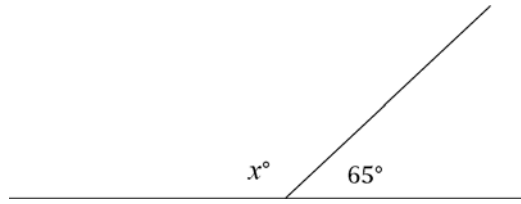
3.	<u>Quantity A</u>	<u>Quantity B</u>
	Mary's birth year	Joe's birth year

- (A) Quantity A is greater.
- (B) Quantity B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

A try is worth 5 points. A conversion is worth 2 points. A penalty goal is worth 3 points.

4.	<u>Quantity A</u>	<u>Quantity B</u>
	3 tries, 2 conversions, 1 penalty	24

- (A) Quantity A is greater.
- (B) Quantity B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.



5.

<u>Quantity A</u>	<u>Quantity B</u>
x	115
- (A) Quantity A is greater.
 (B) Quantity B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

6.

<u>Quantity A</u>	<u>Quantity B</u>
$\frac{15}{16}$	$\frac{16}{15}$
- (A) Quantity A is greater.
 (B) Quantity B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

There are 15 players on Team 1. There are 22 players on Team 2.

There are more offensive players than defensive players on each team.

7.

<u>Quantity A</u>	<u>Quantity B</u>
Number of goalies on Team 1	Number of goalies on Team 2
- (A) Quantity A is greater.
 (B) Quantity B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

$$\frac{y}{x} = 3$$

$$x, y \neq 0$$

8.

<u>Quantity A</u>	<u>Quantity B</u>
x	y
- (A) Quantity A is greater.
- (B) Quantity B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

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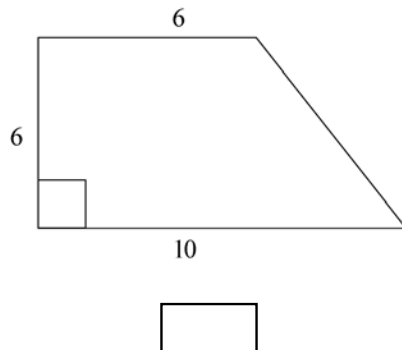
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9. Evaluate the function $f(x) = 5x^3 + 4x^2 + 8x + 1$, when $x = 2$.
- (A) 73
(B) -11
(C) 183
(D) 117
(E) -73
10. Solve the equation $4xy + 8y = 128$ for x , when $y = 4$.
- (A) $x = 10$
(B) $x = 6$
(C) $x = 1$
(D) $x = 12$
(E) $x = 32$

11. If $\frac{3}{x-1} = \frac{6}{3x+6}$, then $x =$
- (A) -8
(B) -1
(C) 0
(D) 1
(E) 8
12. A new model hybrid car gets 45 miles per gallon for city driving and 20% more for highway driving. How many miles per gallon does the hybrid get for highway driving?
- (A) 34
(B) 46
(C) 51
(D) 54
(E) 58

FOR QUESTION 13, ENTER YOUR ANSWER IN THE BOX.

13. Find the area of the trapezoid.

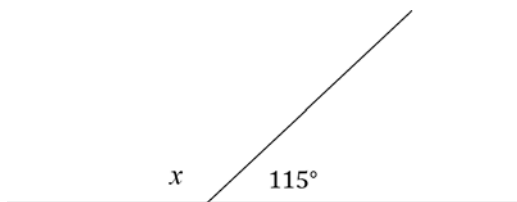


QUESTIONS 14–16 REFER TO THE TABLE BELOW.

Number of Children per Family in a Neighborhood

Number of Children	Number of Families
1	19
2	36
3	21
4+	9
0	15

14. What is the total number of families that have no more than two children?
- (A) 19
(B) 36
(C) 55
(D) 70
(E) 81
15. What is the percentage of families who have no children?
- (A) 9%
(B) 12%
(C) 15%
(D) 18%
(E) 21%
16. What percentage of the families has 6 children?
- (A) 19
(B) 9
(C) 15
(D) 12
(E) unknown
17. The angle x and the angle that measures 115° , are what type of angles?



- (A) complementary
(B) obtuse
(C) acute
(D) supplementary
(E) paired

FOR QUESTION 18–19, CHOOSE ALL THE ANSWERS THAT APPLY.

18. Find the four even factors of 28.

- (A) 0
- (B) 1
- (C) 2
- (D) 3
- (E) 4
- (F) 7
- (G) 14
- (H) 28

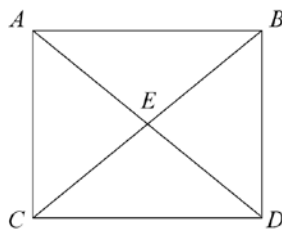
19. When multiplied in pairs, which of the following numbers will give you a product less than -43 ?

- (A) -8
- (B) -6
- (C) 0
- (D) 4
- (E) 5
- (F) 9

FOR QUESTION 20, ENTER YOUR ANSWER IN THE BOXES.

20. If AB and BD are equal lengths and $ABDC$ is a rectangle, what is the ratio of the area of triangle CED to the area of rectangle $ABDC$?

Give your answer as a fraction.



STOP

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