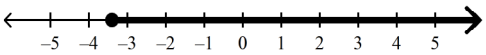
Name: _____ **Class:** _____ **Date:** _____

Module 4 Practice Quiz

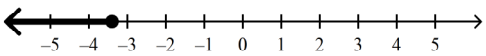
Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Describe the solutions of $6 + y < 10$ in words.
a. The value of y is a number less than or equal to 3.
b. The value of y is a number less than 4.
c. The value of y is a number equal to 3.
d. The value of y is a number greater than 4.

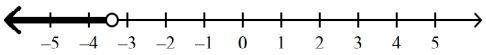
____ 2. Graph the inequality $m < -3.4$.
a.



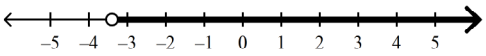
b.



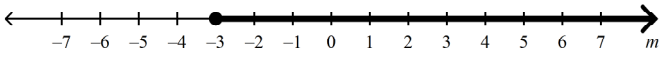
c.



d.



____ 3. Write the inequality shown by the graph.

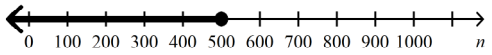


a. $m < -3$
b. $m \leq -3$
c. $m > -3$
d. $m \geq -3$

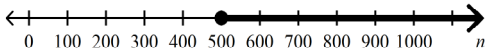
Name: _____

____ 4. To join the school swim team, swimmers must be able to swim at least 500 yards without stopping. Let n represent the number of yards a swimmer can swim without stopping. Write an inequality describing which values of n will result in a swimmer making the team. Graph the solution.

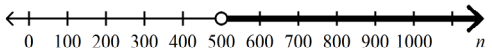
a. $n \leq 500$



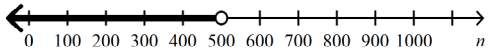
b. $n \geq 500$



c. $n > 500$

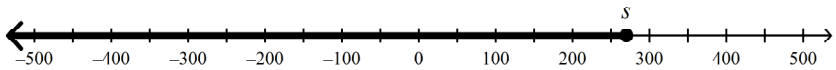


d. $n < 500$

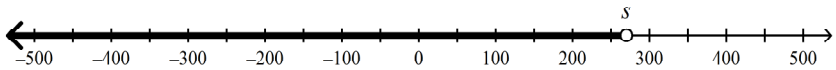


____ 5. Sam earned $450 during winter vacation. He needs to save $180 for a camping trip over spring break. He can spend the remainder of the money on music. Write an inequality to show how much he can spend on music. Then, graph the inequality.

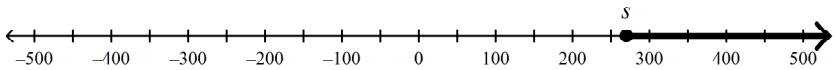
a. $180 + s \leq 450$; $s \leq 270$



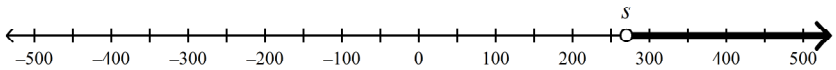
b. $450 + s < 180$; $s < 270$



c. $180 + s \geq 450$; $s \geq 270$



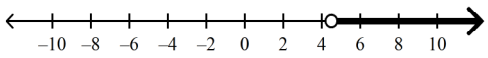
d. $450 + s > 180$; $s > 270$



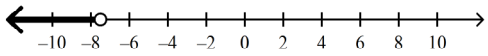
Name: _____

____ 6. Solve the inequality $n + 6 < -1.5$ and graph the solutions.

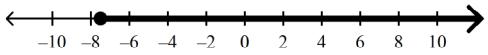
a. $n < 4.5$



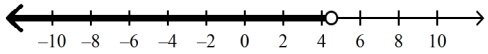
b. $n < -7.5$



c. $n < -7.5$

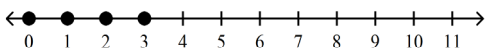


d. $n < 4.5$

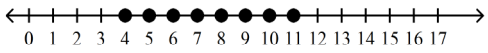


____ 7. Carlotta subscribes to the HotBurn music service. She can download no more than 11 song files per week. Carlotta has already downloaded 8 song files this week. Write, solve, and graph an inequality to show how many more songs Carlotta can download.

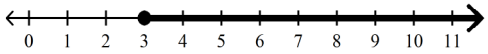
a. $s \leq 3$



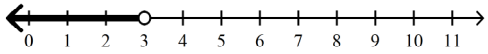
b. $s > 3$



c. $s \geq 3$



d. $s < 3$



____ 8. Denise has $365 in her saving account. She wants to save at least $635. Write and solve an inequality to determine how much more money Denise must save to reach her goal. Let d represent the amount of money in dollars Denise must save to reach her goal.

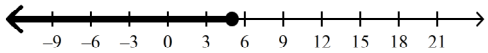
a. $365 + d > 635$; $d > 270$
b. $365 + d \geq 635$; $d \geq 270$
c. $365 + d = 635$; $d = 270$
d. $365 + d \geq 635$; $d > 635$

Name: _____

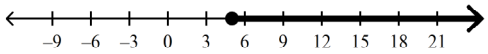
____ 9. Solve the inequality and graph the solution.

$x + 1\frac{2}{5} \le 6\frac{8}{10}$

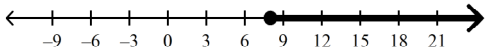
a. $x \le 5\frac{2}{5}$



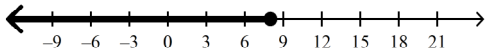
b. $x \ge 5\frac{2}{5}$



c. $x \ge 8\frac{1}{5}$

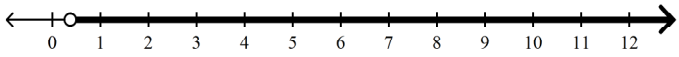


d. $x \le 8\frac{1}{5}$

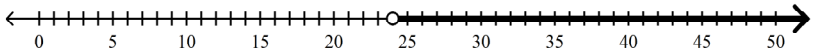


____ 10. Solve the inequality $\frac{x}{8} > 3$ and graph the solutions.

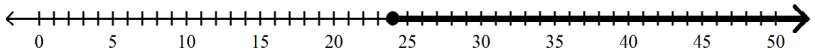
a. $x > \frac{3}{8}$



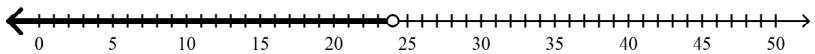
b. $x > 24$



c. $x > 24$



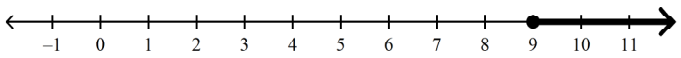
d. $x > 24$



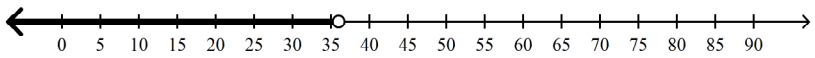
Name: _____

____ 11. Solve the inequality $2m \leq 18$ and graph the solutions.

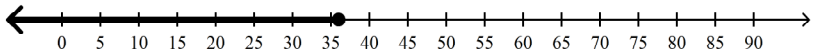
a. $m \leq 9$



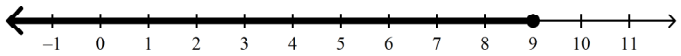
b. $m \leq 36$



c. $m \leq 36$

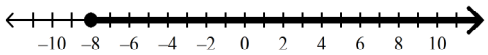


d. $m \leq 9$

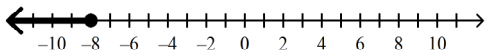


____ 12. Solve the inequality $\frac{z}{-4} \leq 2$ and graph the solutions.

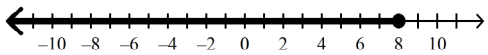
a. $z \geq -8$



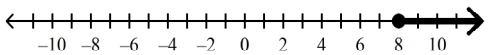
b. $z \leq -8$



c. $z \leq 8$



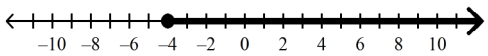
d. $z \geq 8$



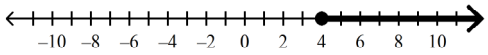
Name: _____

____ 13. Solve the inequality $2f \geq -8$ and graph the solutions.

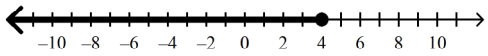
a. $f \geq -4$



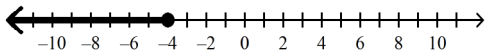
b. $f \geq 4$



c. $f \leq 4$



d. $f \leq -4$



____ 14. Marco's Drama class is performing a play. He wants to buy as many tickets as he can afford. If tickets cost $2.50 each and he has $14.75 to spend, how many tickets can he buy?

a. 4 tickets
c. 6 tickets
b. 0 tickets
d. 5 tickets

____ 15. What is the greatest possible integer solution of the inequality $2.847x < 15.168$?

a. 5.33
c. 4
b. 6
d. 5

Module 4 Practice Quiz
Answer Section

MULTIPLE CHOICE

1. ANS: B
Test values of y that are positive, negative, and 0.

When the value of y is a number less than 4, the value of $6 + y$ is less than 10.
When the value of y is 4, the value of $6 + y$ is equal to 10.
When the value of y is a number greater than 4, the value of $6 + y$ is greater than 10.

It appears that the solutions of $6 + y < 10$ are numbers less than 4.

	Feedback
A	Test the value you found with the equal sign. Do you get a true statement?
B	Correct!
C	Is this the only solution? Test some more values, including fractions.
D	Test some values and find out if you get a true statement. Then, check the inequality symbol.

PTS: 1 DIF: 2 REF: 100e541a-4683-11df-9c7d-001185f0d2ea
OBJ: 4-1.1 Identifying Solutions of Inequalities NAT: NT.CCSS.MTH.10.9-12.A.REI.3
STA: MCC9-12.A.REI.3 LOC: MTH.C.10.08.01.010
TOP: 4-1 Graphing and Writing Inequalities KEY: inequalities
DOK: DOK 2

2. ANS: C
The graph should start at the given value. A > or < graph has an empty circle at that value. A ≥ or ≤ graph has a solid circle at that value. A > or ≥ graph has an arrow to the right, and a < or ≤ graph has an arrow to the left.

	Feedback
A	Check the direction the arrow should be pointing.
B	A "greater than" or "less than" graph has an empty circle. A "greater than or equal to" or "less than or equal to" graph has a solid circle.
C	Correct!
D	Check the direction the arrow should be pointing.

PTS: 1 DIF: 1 REF: 10108f66-4683-11df-9c7d-001185f0d2ea
OBJ: 4-1.2 Graphing Inequalities STA: MCC9-12.A.REI.12
LOC: MTH.C.10.08.02.01.005 TOP: 4-1 Graphing and Writing Inequalities
KEY: graph | inequality | number line DOK: DOK 2

3. ANS: D
Use the variable *m*. The arrow points to the right, so use either > or ≥. The solid circle at –3 means that –3 is a solution, so use ≥.

	Feedback
A	The endpoint is not a solution.
B	The arrow should point in the same direction as the inequality symbol.
C	The endpoint is not a solution.
D	Correct!

PTS: 1 DIF: 1 REF: 1012f1c2-4683-11df-9c7d-001185f0d2ea
OBJ: 4-1.3 Writing an Inequality from a Graph NAT: NT.CCSS.MTH.10.9-12.A.CED.1
STA: MCC9-12.A.REI.12 LOC: MTH.C.10.08.02.01.004
TOP: 4-1 Graphing and Writing Inequalities KEY: inequalities | graph | number line
DOK: DOK 2

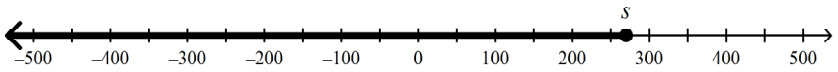
4. ANS: B
The variable *n* must be greater than or equal to 500 yards for a swimmer to make the team. The graph should include the number 500 (solid circle at 500) and all the numbers to the right of 500 on the number line.

	Feedback
A	The number of yards must be greater than or equal to 500, not less than 500.
B	Correct!
C	The number 500 should be included in the solution.
D	The number of yards must be greater than or equal to 500, not less than 500.

PTS: 1 DIF: 2 REF: 101318d2-4683-11df-9c7d-001185f0d2ea
OBJ: 4-1.4 Application NAT: NT.CCSS.MTH.10.9-12.A.CED.1
STA: MCC9-12.A.CED.3 LOC: MTH.C.10.08.02.01.005 | MTH.C.10.08.02.01.007
TOP: 4-1 Graphing and Writing Inequalities KEY: inequalities | graph | number line
DOK: DOK 2

5. ANS: A
Sam has $450, but must save $180 of that for his camping trip.
If s is the amount he can spend on music, then $s \leq 450 - 180 = 270$.

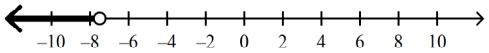
So, $s \leq 270$.



	Feedback
A	Correct!
B	Sam has $450, but must save $180 for his trip. The remaining amount is how much he can spend on music.
C	The amount Sam can spend on music cannot be more than what he saved after his camping trip.
D	The amount Sam can spend on music cannot be more than the amount he earned.

PTS: 1 DIF: 3 REF: 1015541e-4683-11df-9c7d-001185f0d2ea
NAT: NT.CCSS.MTH.10.9-12.A.CED.1 | NT.CCSS.MTH.10.9-12.A.REI.3
STA: MCC9-12.A.CED.1 | MCC9-12.A.CED.3
LOC: MTH.C.10.08.02.01.005 | MTH.C.10.08.02.01.007
TOP: 4-1 Graphing and Writing Inequalities KEY: inequalities | graph | number line
DOK: DOK 3

6. ANS: B
$n + 6 < -1.5$
$\underline{-6} \quad \underline{-6}$ Subtract 6 on both sides to isolate n.
$n < -7.5$



Use a solid circle when the value is included in the graph, such as with ≥ or ≤. Use an empty circle when the value is not included, such as with > or <.

	Feedback
A	Use a solid circle for a "greater than or equal to" or "less than or equal to" graph. Use an empty circle for a "greater than" or "less than" graph.
B	Correct!
C	Check that the arrow is pointing in the correct direction.
D	Check that you used the correct inverse operation.

PTS: 1 DIF: 1 REF: 1017b67a-4683-11df-9c7d-001185f0d2ea
OBJ: 4-2.1 Using Addition and Subtraction to Solve Inequalities
NAT: NT.CCSS.MTH.10.9-12.A.REI.3 STA: MCC9-12.A.REI.3
LOC: MTH.C.10.08.02.01.01.003 | MTH.C.10.08.02.01.005
TOP: 4-2 Solving Inequalities by Adding or Subtracting
KEY: addition | inequality | subtraction | solving DOK: DOK 2

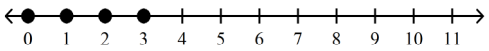
7. ANS: A

number already downloaded	+	additional songs	≤	weekly limit
8	+	s	≤	11

Subtract 8 from both sides to undo the addition.

$s \quad \leq \quad 3$

Since you can only download whole songs, graph the nonnegative integers less than or equal to 3.



	Feedback
A	Correct!
B	Check the inequality symbol.
C	Check the graph, as it not reasonable to have a fractional number of songs.
D	Check the graph, as it not reasonable to have a fractional number of songs.

PTS: 1 DIF: 2 REF: 1017dd8a-4683-11df-9c7d-001185f0d2ea
OBJ: 4-2.2 Problem-Solving Application
NAT: NT.CCSS.MTH.10.9-12.A.CED.1 | NT.CCSS.MTH.10.9-12.A.REI.3
STA: MCC9-12.N.Q.1 LOC: MTH.C.10.08.02.01.005 | MTH.C.10.08.02.01.007
TOP: 4-2 Solving Inequalities by Adding or Subtracting KEY: solving | inequality | word problem
DOK: DOK 2

8. ANS: B

Let d represent the amount of money in dollars Denise must save to reach her goal.

$365	plus	additional amount of money in dollars	is at least	$635
365	+	d	≤	635

$365 + d \geq 635$ Since 365 is added to d, subtract 365 from both sides to undo the addition.

$-\underline{365}$

$-\underline{365}$

$d \geq 270$

Check the endpoint 270 and a number that is greater than the endpoint.

	Feedback
A	Check the endpoint to see if you get a true statement.
B	Correct!
C	You should be solving an inequality, not an equation.
D	Subtract from both sides of the inequality.

PTS: 1 DIF: 2 REF: 101a18d6-4683-11df-9c7d-001185f0d2ea
OBJ: 4-2.3 Application
NAT: NT.CCSS.MTH.10.9-12.A.CED.1 | NT.CCSS.MTH.10.9-12.A.REI.3
STA: MCC9-12.A.CED.1 | MCC9-12.N.Q.1 LOC: MTH.C.10.08.02.01.01.003
TOP: 4-2 Solving Inequalities by Adding or Subtracting
KEY: inequalities | solving | adding | subtracting DOK: DOK 2

9. ANS: A

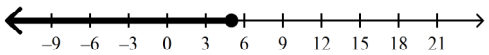
Step 1: Rewrite both mixed numbers as improper fractions.

$1\frac{2}{5} = \frac{7}{5}$ and $6\frac{8}{10} = \frac{68}{10}$

Step 2: Solve the inequality.

$x + \frac{7}{5} \leq \frac{68}{10}$	Rewrite the inequality.
$x \leq \frac{68}{10} - \frac{7}{5}$	Subtract $\frac{7}{5}$ from both sides.
$x \leq \frac{68}{10} - \frac{14}{10}$	Rewrite the fractions with a common denominator.
$x \leq \frac{54}{10} = 5\frac{2}{5}$	Simplify.

Step 3: Graph the inequality.



	Feedback
A	Correct!
B	Check the direction of the inequality.
C	To solve the inequality, subtract the first mixed number from both sides of the inequality.
D	To solve the inequality, subtract the first mixed number from both sides of the inequality.

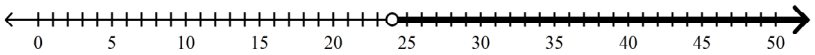
PTS: 1 DIF: 3 REF: 101c7b32-4683-11df-9c7d-001185f0d2ea
NAT: NT.CCSS.MTH.10.9-12.A.REI.3 STA: MCC9-12.A.REI.3
LOC: MTH.C.10.08.02.01.01.003 | MTH.C.10.08.02.01.005
TOP: 4-2 Solving Inequalities by Adding or Subtracting KEY: inequalities | graph | number line
DOK: DOK 3

10. ANS: B

$\frac{x}{8} > 3$

$(8)\frac{x}{8} > 3(8)$ Multiply both sides by 8 to isolate x.

$x > 24$



Use a solid circle when the value is included in the graph, such as with ≥ or ≤. Use an empty circle when the value is not included, such as with > or <.

	Feedback
A	To solve the inequality, use multiplication to undo the division.
B	Correct!
C	Use a solid circle when the value is included in the graph. Use an empty circle when the value is not included.
D	Check that the arrow is pointing in the correct direction.

PTS: 1 DIF: 1 REF: 101ca242-4683-11df-9c7d-001185f0d2ea
OBJ: 4-3.1 Multiplying or Dividing by a Positive Number NAT: NT.CCSS.MTH.10.9-12.A.REI.3
STA: MCC9-12.A.REI.3 LOC: MTH.C.10.08.02.01.01.004 | MTH.C.10.08.02.01.005
TOP: 4-3 Solving Inequalities by Multiplying or Dividing KEY: solving | inequality | graph
DOK: DOK 2

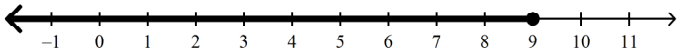
11. ANS: D

$2m \le 18$

$\frac{2m}{2} \le \frac{18}{2}$ Divide both sides by 2 to isolate m.

$m \le 9$

Use a solid circle when the value is included in the graph, such as with ≥ or ≤. Use an empty circle when the value is not included, such as with > or <.



	Feedback
A	Check that the arrow is pointing in the correct direction.
B	Use a solid circle when the value is included in the graph. Use an empty circle when the value is not included.
C	To solve the inequality, use division to undo the multiplication.
D	Correct!

PTS: 1 DIF: 1 REF: 101edd8e-4683-11df-9c7d-001185f0d2ea
OBJ: 4-3.1 Multiplying or Dividing by a Positive Number NAT: NT.CCSS.MTH.10.9-12.A.REI.3
STA: MCC9-12.A.REI.3 LOC: MTH.C.10.08.02.01.01.005 | MTH.C.10.08.02.01.005
TOP: 4-3 Solving Inequalities by Multiplying or Dividing KEY: solving | inequality | graph
DOK: DOK 2

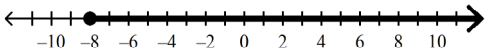
12. ANS: A

$\frac{z}{-4} \le 2$

$(-4)\frac{z}{-4} \ge 2(-4)$ Multiply both sides by –4 to isolate z. When you multiply by a negative number, reverse the inequality symbol.

$z \ge -8$

Use a solid circle when the value is included in the graph, such as with ≥ or ≤. Use an empty circle when the value is not included, such as with > or <.



	Feedback
A	Correct!
B	When multiplying by a negative number, reverse the inequality symbol.
C	Check the signs.
D	Check the signs.

PTS: 1 DIF: 2 REF: 10213fea-4683-11df-9c7d-001185f0d2ea
OBJ: 4-3.2 Multiplying or Dividing by a Negative Number NAT: NT.CCSS.MTH.10.9-12.A.REI.3
STA: MCC9-12.A.REI.3 LOC: MTH.C.10.08.01.01.006 | MTH.C.10.08.02.01.01.004
TOP: 4-3 Solving Inequalities by Multiplying or Dividing
KEY: inequality | solving | multiplication | division DOK: DOK 2

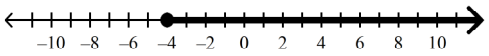
13. ANS: A

$2f \ge -8$

$\frac{2f}{2} \ge \frac{-8}{2}$ Divide both sides by 2 to isolate f.

$f \ge -4$

Use a solid circle when the value is included in the graph, such as with ≥ or ≤. Use an empty circle when the value is not included, such as with > or <.



	Feedback
A	Correct!
B	Check the signs.
C	Check the signs.
D	When dividing by a positive number, keep the same inequality symbol. When dividing by a negative number, reverse the inequality symbol.

PTS: 1 DIF: 2 REF: 102166fa-4683-11df-9c7d-001185f0d2ea
OBJ: 4-3.2 Multiplying or Dividing by a Negative Number NAT: NT.CCSS.MTH.10.9-12.A.REI.3
STA: MCC9-12.A.REI.3 LOC: MTH.C.10.08.02.01.01.005 | MTH.C.10.08.02.01.005
TOP: 4-3 Solving Inequalities by Multiplying or Dividing
KEY: inequality | solving | multiplication | division DOK: DOK 2

14. ANS: D

$2.50t \le 14.75$

$\frac{2.50t}{2.50} \le \frac{14.75}{2.50}$ Divide both sides by the ticket price. The inequality symbol does not change.

$t \le 5.9$ Simplify.

5 is the largest whole number less than 5.9.

	Feedback
A	Divide the total amount by the ticket price and round down to the nearest whole number.
B	Divide the total amount by the ticket price and round down to the nearest whole number.
C	Round down, not up, to the nearest whole number.
D	Correct!

PTS: 1 DIF: 2 REF: 1023a246-4683-11df-9c7d-001185f0d2ea
OBJ: 4-3.3 Application STA: MCC9-12.A.REI.3
LOC: MTH.C.10.08.02.01.01.005 TOP: 4-3 Solving Inequalities by Multiplying or Dividing
KEY: inequalities | solving | multiplying | dividing DOK: DOK 2

15. ANS: D

2.847 is about 3, and 15.168 about 15.

With estimation, $2.847x < 15.168$ becomes $3x < 15$. So, the greatest possible integer solution is 5.

	Feedback
A	The solution needs to be an integer.
B	Round the numbers in the inequality to the nearest integer, and then divide.
C	Round the numbers in the inequality to the nearest integer, and then divide.
D	Correct!

PTS: 1 DIF: 3 REF: 102604a2-4683-11df-9c7d-001185f0d2ea
NAT: NT.CCSS.MTH.10.9-12.A.REI.3 STA: MCC9-12.A.REI.3
LOC: MTH.C.10.08.02.01.01.005 TOP: 4-3 Solving Inequalities by Multiplying or Dividing
KEY: inequalities | solving | multiplying | dividing DOK: DOK 3

Module 4 Practice Quiz [Answer Strip] **ID: A**

__B__ 4. __B__ 6. __A__ 9. __D__ 11.

__B__ 1.

__C__ 2.

__A__ 7. __A__ 12.

__A__ 5.

__B__ 10.

__D__ 3.

__B__ 8.

Module 4 Practice Quiz [Answer Strip] **ID: A**

__A__ 13.

__D__ 14.

__D__ 15.