Math 90 Fall 2009
Test #1: Chapters 1, 2, 3 and 4

Name_____

Tests from past semesters are provided as a study preparation tool. As tests are created by different instructors, problems on current tests may differ. Sample tests are a good begining point in your test preparation but it is recommended that you don't use sample tests as your only study resource.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use the order of operations to simplify the expression.

1) $\frac{-5(-7)-(5)5^3}{-9-\sqrt{25}+6}$ 1) _____

A) $\frac{295}{4}$ B) $-\frac{1875}{2}$ C) $-\frac{1875}{4}$ D) $\frac{7795}{4}$

Solve the formula for the specified variable.

2) $F=\frac{9}{5}C+32$ for C 2) _____

A) $C=\frac{5}{9}(F-32)$ B) $C=\frac{5}{F-32}$ C) $C=\frac{F-32}{9}$ D) $C=\frac{9}{5}(F-32)$

Decide whether the equation is conditional, an identity, or a contradiction. Give the solution set.

3) $4x+6(x+1)+2=8-7x$ 3) _____

A) Conditional; {1}
B) Conditional; {0}
C) Contradiction; ∅
D) Identity; {all real numbers}

Solve the equation.

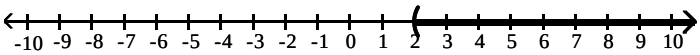
4) $|4m+5|=6$ 4) _____

A) $\left\{-\frac{1}{4},\frac{11}{4}\right\}$ B) $\left\{\frac{1}{5},-\frac{11}{5}\right\}$ C) ∅ D) $\left\{\frac{1}{4},-\frac{11}{4}\right\}$

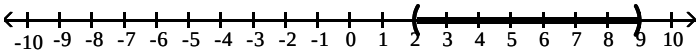
For the compound inequality, give the solution set in both interval and graph forms.

5) $x < 2$ or $x < 9$ 5) _____

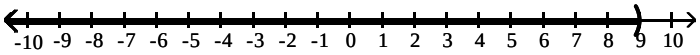
A) $(2, \infty)$



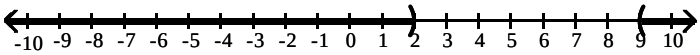
B) $(2, 9)$



C) $(-\infty, 9)$

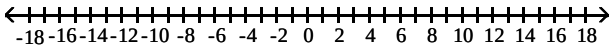


D) $(-\infty, 2) \cup (9, \infty)$

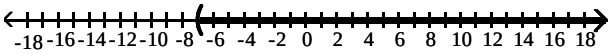


Solve the inequality and graph the solution set.

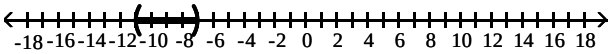
6) $|r + 9| > 2$ 6) _____



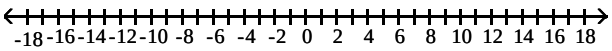
A) $(-7, \infty)$



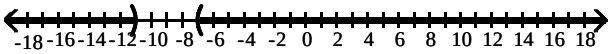
B) $(-11, -7)$



C) $\varnothing$



D) $(-\infty, -11) \cup (-7, \infty)$



Solve the given equation or inequality. If an equation is given, then write the solution set in set notation. If an inequality is given, then write the solution set in interval notation.

7) $|5x + 3| + 9 < 5$ 7) _____

A) $\left(-\infty, -\frac{7}{5}\right)$

B) $\left(-\infty, \frac{1}{5}\right) \cup \left(-\frac{7}{5}, \infty\right)$

C) $\left(-\infty, \frac{1}{5}\right)$

D) $\emptyset$

Solve the mixture problem.

8) It is necessary to have a 40% antifreeze solution in the radiator of a certain car. The radiator now has 70 liters of 20% solution. How many liters of this should be drained and replaced with 100% antifreeze to get the desired strength? 8) _____

A) 35 liters B) 23.3 liters C) 17.5 liters D) 28 liters

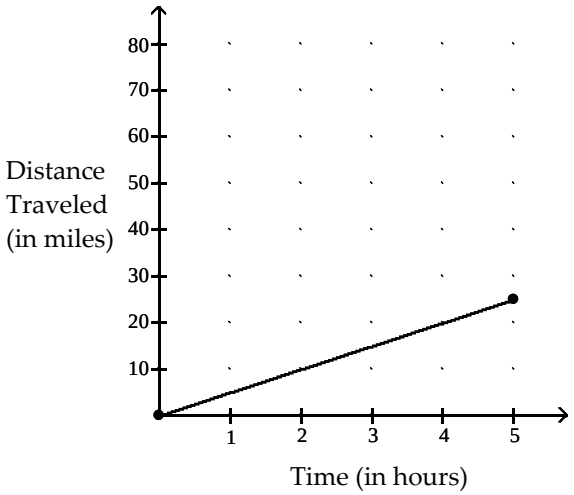
Solve the problem.

9) A convention manager finds that she has $1020, made up of twenties and fifties. She has a total of 33 bills. How many fifty–dollar bills does the manager have? 9) _____

A) 8 B) 33 C) 12 D) 21

Find the average rate of change illustrated in the graph.

10) 10) _____



A) 2.5 miles per hour

B) 5 miles per hour

C) .2 miles per hour

D) 25 miles per hour

Find an equation of the line, and write it in (a) slope–intercept form if possible and (b) standard form.

11) Through (–8, 7); m = –9 11) _____

A) (a) $y = -9x - 65$
(b) $9x + y = 65$

B) (a) $y = -9x + 72$
(b) $9x + y = 72$

C) (a) $y = 9x - 63$
(b) $-9x + y = -63$

D) (a) $y = -9x - 65$
(b) $9x + y = -65$

Solve the problem.

12) Find f(–1) when $f(x) = 3x^2 + 5x + 6$. 12) _____

A) 2 B) 14 C) 4 D) –8

13) Find g(a – 1) when $g(x) = \frac{1}{5}x + 2$. 13) _____

A) $\frac{1}{5}a - 5$ B) $\frac{a + 9}{5}$ C) $\frac{a - 9}{5}$ D) $\frac{1}{5}a + 2$

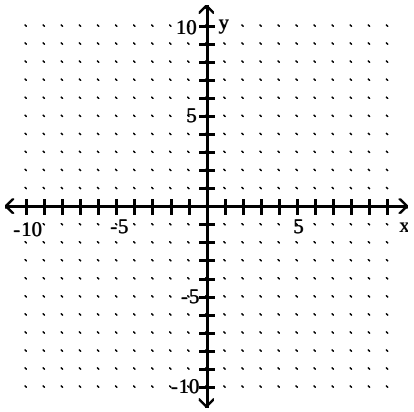
Find an equation of the line passing through the two points. Write the equation in standard form.

14) (–2, –6) and (–7, 0) 14) _____

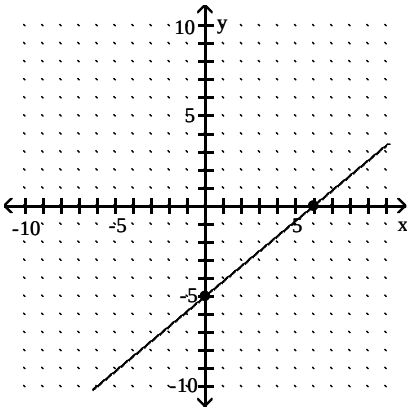
A) 4x – 7y = 28 B) –4x + 7y = 28 C) –6x + 5y = –42 D) 6x + 5y = –42

Find the x– and y–intercepts, and graph the equation.

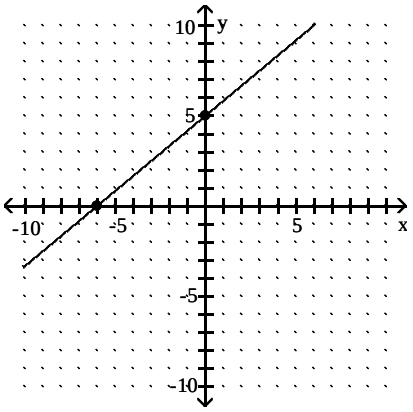
15) 5x + 6y = 30 15) _____



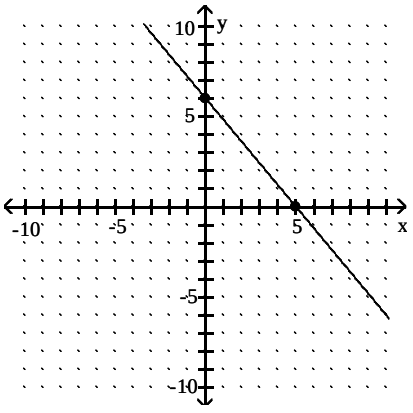
A) (0, –5), (6, 0)



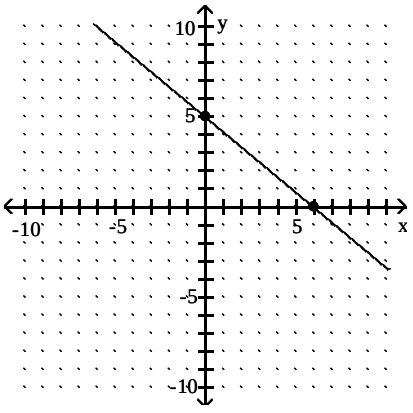
B) (0, 5), (–6, 0)



C) (0, 6), (5, 0)



D) (0, 5), (6, 0)



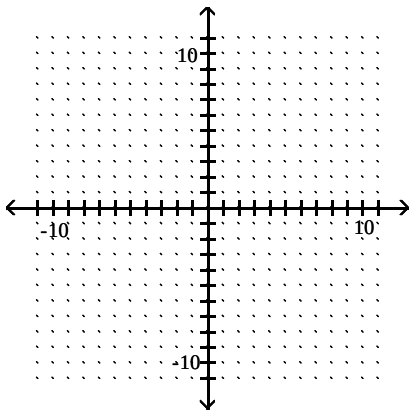
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find an equation of the line, and write it in (a) slope–intercept form if possible and (b) standard form.

16) Through (–3, –8) and perpendicular to $y = \frac{1}{3}x + 17$ 16) _____

Graph the inequality or compound inequality.

17) $2x + 9y > -4$ 17) _____



Solve the system of equations.

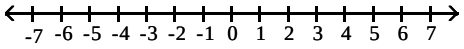
18) $-6x + 4y = -28$ 18) _____
$-3x - 2y = -22$

Solve the following problem.

19) Chuck and Dana agree to meet in Chicago for the weekend. Chuck travels 62 miles in the same time that Dana travels 52 miles. If Chuck's rate of travel is 5 mph more than Dana's, then at what rate does Chuck travel? 19) _____

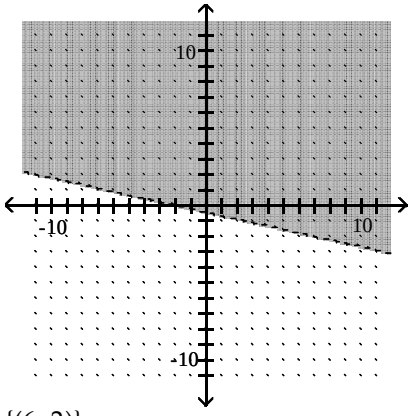
Solve the inequality. Give the solution set in both *interval and graph* forms.

20) $-21 < 5a + 4 \leq -1$ 20) _____



Interval Notation:

1) A
2) A
3) B
4) D
5) C
6) D
7) D
8) C
9) C
10) B
11) D
12) C
13) B
14) D
15) D
16) (a) $y = -3x - 17$
(b) $3x + y = -17$
17)



18) {(6, 2)}
19) 31 mph
20) (–5, –1]