High School Mathematics Test 2013

Year 8

Linear Equations

Non Calculator Section

Skills and Knowledge Assessed:

- Solve simple linear equations (ACMN A179)
- Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution (ACMNA194)

Name_____

Answer all questions in the spaces provided on this test paper by:

Writing the answer in the box provided.

or

Shading in the bubble for the correct answer from the four choices provided.

Show any working out on the test paper.

1. What number is missing from the sentence?

$8 + \boxed{?} = 24$

☐ 3 ☐ 16 ☐ 29 ☐ 192

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2. Give the solution to:

$m - 15 = 24$ $\quad m =$ ☐

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3. Which is the correct solution to:

$p + 8 = 5$

☐ $p = -13$ ☐ $p = -3$ ☐ $p = 3$ ☐ $p = 13$

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4. Give the solution to:

$\frac{r}{4} = -32$ $\quad r =$ ☐

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5. What number is missing from the sentence?

$5 \times \boxed{?} - 11 = 24$

☐ $-2\frac{3}{5}$ ☐ $2\frac{3}{5}$ ☐ 7 ☐ 131

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6. What number is missing from the sentence?

$\frac{\boxed{?}}{3} + 6 = 9$

☐ 1 ☐ 3 ☐ 5 ☐ 9

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7. Which line in the solution to the equation $8m + 6 = 26$ contains an error?

$8m + 6 = 26$

Line 1 $8m = 26 - 6$

Line 2 $8m = 20$

Line 3 $m = 20 \times 8$

Line 4 $m = 160$

☐ Line 1 ☐ Line 2 ☐ Line 3 ☐ Line 4

8. Test the possible solutions below to find the correct solution to the equation :

$$4(x + 5) = 12$$

☐ $x = -8$ ☐ $x = -2$ ☐ $x = 2$ ☐ $x = 8$

9. Which number below could not be used to complete the sentence?

$$8 \times \boxed{?} + 4 \geq 20$$

☐ 1 ☐ 2 ☐ 3 ☐ 4

10. Write two numbers which could be used to make this sentence true.

$$3 \times \boxed{?} + 5 < 8$$

☐ or ☐

11. Use the formula $v = u + at$ to find the value of t, when $u = 4$, $a = 7$ and $v = 25$.

$t =$ ☐

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Linear Equations

Calculator Allowed Short Answer Section

Name_____

Answer all questions in the spaces provided on this test paper by:
Writing the answer in the box provided.
or
Shading in the bubble for the correct answer from the four choices provided.
Show any working out on the test paper. Calculators are allowed.

1. Which calculation could be used to find the solution to the equation $\frac{c}{5} = 2.4$?

☐ $c = 2.4 \times 5$ ☐ $c = 2.4 \div 5$ ☐ $c = 2.4 - 5$ ☐ $c = 2.4 + 5$

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2. Give the solution to:

$m + 1.24 = 2.3$ $m =$ ☐

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3. Which is the correct solution to:

$k - 4.6 = -2.5$

☐ $k = -7.1$ ☐ $k = -2.1$ ☐ $k = 2.1$ ☐ $k = 7.1$

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4. Give the solution to:

$1.6v = 2.4$

$y =$ ☐

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5. Solve the equation $4e + 16 = 10$.

☐ $e = -6.5$ ☐ $e = -1.5$ ☐ $e = 1.5$ ☐ $e = -6.5$

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6. Which is the correct solution to the equation :

$\frac{d}{5} - 1.2 = 6$

☐ $d = 1.44$ ☐ $d = 24$ ☐ $d = 36$ ☐ $d = 66$

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7. Which line in the solution to the equation $3(2x-5)=27$ contains an error?

$3(2x-5)=27$

Line 1 $6x-15=27$

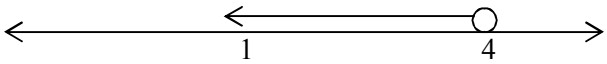
Line 2 $6x=27+15$

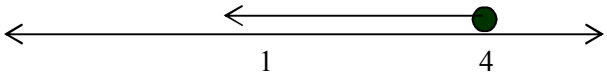
Line 3 $6x=42$

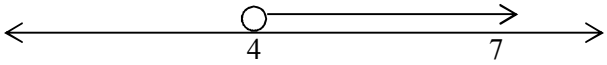
Line 4 $6x=42\times 7=294$

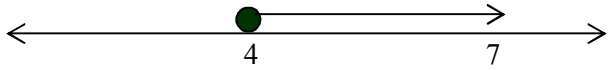
☐ Line 1 ☐ Line 2 ☐ Line 3 ☐ Line 4

8. The graph of the solution to $4x \geq 16$ is :

☐ 

☐ 

☐ 

☐ 

9. Which is the solution to $6u-12=2-u$?

☐ $u=2$ ☐ $u=2.8$ ☐ $u=4$ ☐ $u=5.6$

10. Use the formula $s=\frac{v^2-K}{2a}$ to find the value of K, when $s=3$, $v=5$ and $a=3$.

☐ $K=1$ ☐ $K=7$ ☐ $K=43$ ☐ $K=44$

11. The formula $C=\frac{5F-160}{9}$ Is used to convert between temperatures in degrees Celsius (C) and degrees Fahrenheit (F). Find the Farenheit equivalent of 40^{o} Celsius.

$40^{o}\text{ C} =$ ☐ ^{o}F

High School Mathematics Test 2013

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Linear Equations

Calculator Allowed
Longer Answer Section

Name_____

Write all working and answers in the spaces provided on this test paper.
Marks may not be awarded if working out and/or answers are not clear.
Marks allocated are shown beside each question.
Calculators are allowed.

1. Solve the equations below, showing all steps of working, regardless of the method used,

a) $7p + 4 = 53$ **2 Marks**

_____

_____

_____

b) $\frac{r}{5} - 7 = -3$ **2 Marks**

_____

_____

_____

c) $\frac{8m}{3} = 24$ **2**

_____

_____

_____

d) $\frac{y+6}{9} = 2$ **2**

_____

_____

_____

e) $4u - 11 = 2$ **2**

_____

_____

_____

f) $8k = 5k + 15$ **2**

_____

_____

_____

2. Solve the equations below, showing all steps of working, regardless of the method used,

Marks

a) $\frac{3y - 6}{5} - 12 = 9$ 3

b) $10 - 2(3a - 4) = 10 - 2a$ **Marks** 3

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Linear Equations

ANSWERS

Non Calculator Section

1.	16
2.	$m = 39$
3.	$p = -3$
4.	$r = -128$
5.	7
6.	9

7.	Line 3
8.	$x = -2$
9.	1
10.	Any 2 numbers less than 1
11.	$t = 3$

Calculator Allowed Section

1.	$c = 2.4 \times 5$
2.	$m = 1.06$
3.	$k = 2.1$
4.	$v = 1.5$
5.	$e = -1.5$
6.	$d = 36$
7.	Line 4
8.	The last one
9.	$u = 2$
10.	$K = 7$
11.	104°

Calculator Allowed
Longer Answer
Section

1. **Marks** **Marks**

a) $7p + 4 = 53$ **2**

$7p = 53 - 4$

$7p = 49$

$p = \frac{49}{7}$

$p = 7$

b) $\frac{r}{5} - 7 = -3$ **2**

$\frac{r}{5} = -3 + 7$

$\frac{r}{5} = 4$

$r = 4 \times 5$

$r = 20$

c) $\frac{8m}{3} = 24$ **2**

$8m = 3 \times 24$

$8m = 72$

$m = \frac{72}{8}$

$m = 9$

d) $\frac{y + 6}{9} = 2$ **2**

$y + 6 = 9 \times 2$

$y + 6 = 18$

$y = 18 - 6$

$y = 12$

e) $4u - 11 = 2$ **2**

$4u = 2 + 11$

$4u = 13$

$u = \frac{13}{4}$

$u = 3\frac{1}{4}$

f) $8k = 5k + 15$ **2**

$8k - 5k = 15$

$3k = 15$

$k = \frac{15}{3}$

$k = 5$

2. **Marks**

a) $\frac{3y - 6}{5} + 12 = 9$ 3

$\frac{3y - 6}{5} = 9 + 12$

$\frac{3y - 6}{5} = 21$

$3y - 6 = 21 \times 5$

$3y - 6 = 105$

$3y = 105 + 6$

$3y = 111$

$y = \frac{111}{3}$

$y = 37$

Marks

b) $10 - 2(3a - 4) = 10 - 2a$ 3

$10 - 6a + 8 = 10 - 2a$

$18 - 6a = 10 - 2a$

$18 - 6a + 2a = 10$

$18 - 4a = 10$

$-4a = 10 - 18$

$-4a = -8$

$a = \frac{-8}{-4}$

$a = 2$