Date: _____ Name: _____

MPM 2D1

Grade 9 Review Assignment

INSTRUCTIONS:
- Make sure your full name is on all pages to be handed in.
- Show all steps of work for each question on a separate piece of paper.
- Circle each answer on assignment page and put answers on scantron card.
- Assignment page, rough work and scantron are to be handed in.

1. Simplify. $(-3-5)-(2-4)$

A. 10 B. −10 C. 0 D. −6 E. −4

2. Simplify. $(-4)(-3)-[6+4(-2)]$

A. −10 B. 32 C. 14 D. −32 E. −8

3. Which expression simplifies to −17?

A. $(-1+8)\times 5-7$ B. $-1+(8\times 5)-7$ C. $-1+(8\times 5-7)$
D. $(-1+8\times 5)-7$ E. $-1+8(5-7)$

4. Simplify. $-\frac{2}{5}+\frac{3}{4}\times\frac{1}{3}$

A. $\frac{7}{60}$ B. $-\frac{3}{20}$ C. $\frac{37}{20}$ D. $\frac{13}{20}$ E. $\frac{23}{60}$

5. Simplify. $\left(-\frac{1}{3}+\frac{4}{3}\right)\div\left(\frac{3}{12}-\frac{11}{12}\right)$

A. $\frac{5}{2}$ B. $\frac{3}{2}$ C. $\frac{6}{7}$ D. $-\frac{3}{2}$ E. $-\frac{2}{3}$

6. Evaluate $-3p-5$ for $p=7$.

A. −15 B. −26 C. −16 D. −16 E. none of these

7. Translate the sentence into mathematical equations.
One number is one-third of another number. The sum of the two numbers is 24. Find the numbers.
Which equation will help solve the problem?

A. $3x+y=24$ B. $x-\frac{1}{3}y=24$ C. $3x-y=24$
D. $x+\frac{1}{3}y=24$ E. $\frac{1}{3}x-y=24$

all wrong
correct equation: _____

8. Simplify. $(-5y^2)(4y^5)$

A. $-20y^{10}$ B. $-y^7$ C. $-20y^7$ D. $-y^{10}$ E. $-20y^3$

9. Simplify. $\frac{(3a^2)^2(2a^4)^3}{(6a)^2}$

A. a^{14} B. $2a^{14}$ C. $2a^5$ D. $2a^9$ E. $216a^{14}$

10. Write 0.000 002 91 in scientific notation.

A. 2.91×10^{-6} B. $.291\times10^{-5}$ C. 2.91×10^{6}
D. 0.291×10^{-9} E. 2.91×10^{-9}

11. Write 326×10^{-4} in scientific notation.

A. 32.6×10^{-3} B. 0.326×10^{-1} C. 3.26×10^{-2}
D. 3.26×10^{-4} E. 3.26×10^{-6}

12. If the area of a circle is 36π cm^2, what is the radius?

A. 6 cm^2 B. 36 cm C. 36 D. 6 cm E. 36 cm^2

13. Simplify. $3a^2+7ab-9a^2-15ba+a^2$

A. $-5a^2+7ab-15ba$ B. $-6-8ab$ C. $5a^2+22ab$
D. $-6a^2+22ba$ E. $-5a^2-8ab$

14. Simplify. $(5x-2y)-(11x+7y)$

A. $6x-9y$ B. $-6x-9y$ C. $-6x+9y$
D. $16x+5y$ E. $16x-9y$

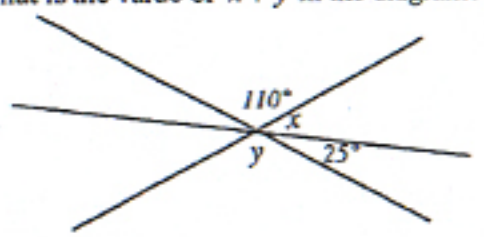
15. Expand. $-3a^2(5a^2-7a+8)$

A. $-15a^2+21a-24$ B. $-15a^4-21a^3+24a^2$ C. $-15a^2-21a-24$
D. $-15a^4+21a^3-24a^2$ E. $-15a^4+21a-24$

16. Factor. $12m^3-18m^2+36m$

A. $6(2m^3-3m^2+6m)$ B. $12m(m^2-2m+3)$ C. $6m(2m^2-3m-6)$
D. $6m(2m^2-3m+6)$ E. $12(m^3-2m^2+3)$

17. What is the value of $x+y$ in the diagram?



A. 25° B. 110° C. 155° D. 45° E. 135°

18. What is the sum of the exterior angles of a triangle?

A. 360° B. 270° C. 180° D. 90° E. 45°

19. What is the formula for volume of a sphere?

A. $\frac{4}{3}\pi r^3$ B. $4\pi r^2$ C. $\pi r^2 h$ D. $\frac{1}{3}\pi r^2 h$ E. $\frac{4}{3}\pi r^2 h$

20. For this triangle,  which statement is the Pythagorean Theorem?

A. $m^2 = n^2 + p^2$ B. $n^2 = m^2 + p^2$ C. $p^2 = m^2 + n^2$
D. $m = n + p$ E. $p = m + n$

21. What is the value of 3^0?

A. 0 B. 3 C. 1 D. -3 E. -1

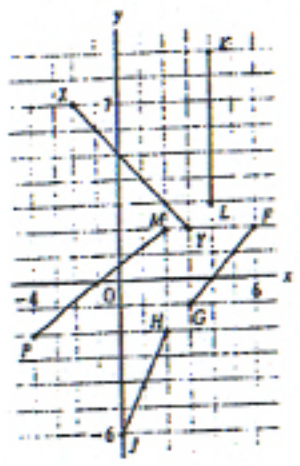
22. What is the value of 4^{-2}?

A. 4 B. -2 C. 16 D. $\frac{1}{16}$ E. -16

23. What is the greatest common factor for these terms? $8x^3y$, $20x^2y^2$, $40x^3y^2$

A. $4x^2y$ B. $8x^2y^2$ C. $4x^2$ D. $4y$ E. x^2y

24. Which line segment has a slope of $\frac{2}{3}$?



A. XY B. HJ C. KL D. GF E. MP

25. A line that has zero slope:

A. is horizontal B. has no length C. is vertical
D. does not exist E. always passes through the origin

26. A line that has a slope that is not defined as a real number: (ie. undefined)

A. is horizontal B. has no length C. is vertical
D. does not exist E. always passes through the origin

27. Perpendicular line segments:

A. bisect each other
B. are equal in length
C. have equal slopes
D. cross each other at 90°
E. have slopes that are reciprocals

28. The Opposite Angle Theorem states that:

A. when two lines intersect at right angles, the opposite angles are equal
B. when two lines intersect, the opposite angles are equal
C. when two lines are perpendicular, the opposite angels are equal
D. when two lines intersect, the opposite angles are 90°
E. when two lines bisect each other, the opposite angles are equal

29. Supplementary angles are:

A. two angles with a sum of 90°
B. two angles with a sum of 360°
C. two opposite angles with a sum of 90°
D. acute angles
E. two angles with a sum of 180°

30. The Angle Sum Theorem states:

A. supplementary angles add to 180°
B. alternate angles are equal
C. complementary angles add to 90°
D. in any triangle, the sum of the angles is 180°
E. corresponding angles are equal

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A. 10 B. -10 C. 0 D. -6 E. -4

$(-8)-(-2) = -8+2 = -6$

2. Simplify. $(-4)(-3)-[6+4(-2)]$
A. -10 B. 32 C. 14 D. -32 E. -8

$12-[6-8] = 12-(-2) = 14$

3. Which expression simplifies to -17?
A. $(-1+8)\times 5-7$ B. $-1+(8\times 5)-7$ C. $-1+(8\times 5-7)$
D. $(-1+8\times 5)-7$ E. $-1+8(5-7)$

$-1+8(-2) = -1-16 = -17$

4. Simplify. $-\frac{2}{5}+\frac{3}{4}\times\frac{1}{3}$
A. $\frac{7}{60}$ B. $-\frac{3}{20}$ C. $\frac{37}{20}$ D. $\frac{13}{20}$ E. $\frac{23}{60}$

$-\frac{2}{5}+\frac{3}{12} = -\frac{2}{5}+\frac{1}{4} = -\frac{8}{20}+\frac{5}{20} = -\frac{3}{20}$

5. Simplify. $\left(-\frac{1}{3}+\frac{4}{3}\right)\div\left(\frac{3}{12}-\frac{11}{12}\right)$
A. $\frac{5}{2}$ B. $\frac{3}{2}$ C. $\frac{6}{7}$ D. $-\frac{3}{2}$ E. $-\frac{2}{3}$

$\left(\frac{3}{3}\right)\div\left(\frac{-8}{12}\right) = 1\times\left(\frac{-12}{8}\right) = -\frac{12}{8} = -\frac{3}{2}$

6. Evaluate $-3p-5$ for $p=7$.
A. -15 B. -26 C. -16 D. -16 E. none of these

$-3(7)-5 = -21-5 = -26$

7. Translate the sentence into mathematical equations.
One number is one-third of another number. The sum of the two numbers is 24. Find the numbers.
Which equation will help solve the problem?
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D. $x+\frac{1}{3}y=24$ E. $\frac{1}{3}x-y=24$

let x be one #
let $\frac{1}{3}x$ be the 2nd
all wrong
correct equation: $x+\frac{1}{3}x=24$

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$= \frac{(9a^4)(8a^{12})}{36a^2} = \frac{72}{36}a^{14} = 2a^{14}$

10. Write 0.000 002 91 in scientific notation.
A. 2.91×10^{-6} B. $.291\times10^{-5}$ C. 2.91×10^{6}
D. 0.291×10^{-9} E. 2.91×10^{-9}

move 6 times →

11. Write 326×10^{-4} in scientific notation.
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D. 3.26×10^{-4} E. 3.26×10^{-6}

move 2 times ←

12. If the area of a circle is 36π cm^2, what is the radius?
A. 6 cm^2 B. 36 cm C. 36 D. 6 cm E. 36 cm^2

$A=\pi r^2 = \pi(36)$
$r^2 = 36$
$r = 6$

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$5x-2y-11x-7y = -6x-9y$

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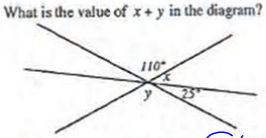

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$x = 180-110-25 = 45$
$y = 180-45-25 = 110°$
$x+y = 45+110 = 155$

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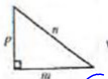
20. For this triangle,  which statement is the Pythagorean Theorem?

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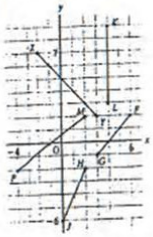

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