N _____

Score _____

Cumulative Test 13A

Math Course 3

Also take Power-Up Test 13

1. (58) The $120 repair bill included $36 for parts and the rest for labor. What percent of the bill was for labor?

2. (53) Five students measured the mass of the rock. Their readings were 97.3 g, 99.2 g, 98.4 g, 98.6 g, and 99.0 g. Find the mean and median of these measures.

3. (55) A vertical yard stick casts a shadow 24 inches at the same time that a flagpole casts a shadow 16 feet long. How tall is the flagpole?

4. (63) The sales tax rate is $7\frac{1}{2}\%$. What is the sales tax on a $164.00 purchase?

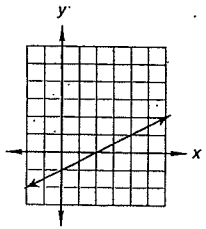
5. (64) The speedometer on Maury's car shows the speed in both miles per hour and kilometers per hour. Using 1.6 km as the equivalent for 1 mi, find the mile per hour rate that is equivalent to 80 kilometers per hour.

6. (Inv. 2) What is the length of a diagonal of a rectangle that is 24 inches long and 10 inches wide?

7. (52) Solve and graph the solution on a number line:

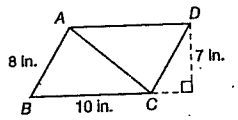
$$x + 2 < 3$$

8. (56) Write the equation of this line in slope-intercept form.



9. (32) A coin is tossed and a number cube is rolled. What is the probability of getting heads and an even number?

For questions 10–12 refer to parallelogram *ABCD*.



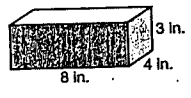
10. (60) What is the area of the parallelogram?

11. (20) What is the area of $\triangle ABC$?

12. (Inv. 3, 54) If $\angle B$ measures 61°, then what is the measure of $\angle DAB$?

13. (63) Write $\frac{5}{12}$ as a percent and a decimal.

14. (42) What is the volume of a brick with these dimensions?



For questions 15–18, simplify the expression.

15. (15) $4^0 + 3^1 + 2^2 - 1^3$

16. (51) $\dfrac{6x^{-2}yx^5y}{2x^2y}$

17. (13, 63) $\frac{3}{2} - \left(\frac{3}{2}\right)^{-1}$

18. (57) $(4 \times 10^{-4})(3 \times 10^{-3})$

For questions 19 and 20, solve for x.

19. (50) $0.8 + 0.2x = 1.2$

20. (50) $\frac{7}{8}x + \frac{3}{4} = \frac{9}{8}$

SCORE: _____

1. $120 total − 36 parts = $84 labor

$84 ÷ 120 = .7

.70 → 70%

2. Mean: 97.3, 94.2, 98.4, 98.6, 99.0 → 492.5 ÷ 5 = 98.5

Median: 97.3, 98.4, 98.6, 99.0, 99.2 → 98.6 g

3. 36 in = 1 yd (24 in) × ☐ (16 ft)

Step 1: Change 1 yd to 36 inches

Step 2: Band-Aid

$\frac{36}{24} = \frac{x}{16}$

36 × 16 = 576

576 ÷ 24 = 24 feet

4. $\frac{7.5}{100}$ of $164 = ?

Step 1: Divide 164 ÷ 100 = 1.64

Step 2: Multiply 1.64 × 7.5 = $12.30

5. $\frac{80\ km}{1\ hr} \cdot \left(\frac{1\ mi}{1.6\ km}\right) = \frac{80\ miles}{1.6\ hr}$

* We need miles on top, so use $\frac{1\ mi}{1.6\ km}$

80 ÷ 1.6 = 50 miles/hr

6. 24 in, 10 in

* This makes a right triangle.

* Use $a^2+b^2=c^2$

$10^2+24^2=c^2$

$100+576=c^2$

$676=c^2$

$\sqrt{676}=26$

26 inches

7. $x+2<3$

$-2 \quad -2$

$x<1$

* Opposite! (subtract 2)

8. Step 1: Find y-intercept (this line crosses at −1)

Step 2: Find slope. (You go up 1; over 2) $\frac{1}{2}$ to get to next point

$y=\frac{1}{2}x-1$

9. Total Sample Space

H1, H2, H3, H4, H5, H6

T1, T2, T3, T4, T5, T6

3 have Heads & Even # / 12 total $= \frac{1}{4}$

10. Area = B·h

A = 10·7

= 70 in.²

* Do not use slant height! (the 8 in.)

11. Area = (b·h) ÷ 2

* Don't use slant height!

A = (10·7) ÷ 2

70 ÷ 2 = 35 in.²

12. 61°

These have to add up to 180°.

180 − 61 = 119°

13. $\frac{5}{12}$ as decimal: 5 ÷ 12 = .416

$\frac{5}{12}$ as percent: .41666 = 41.6%

14. V = L·W·H

V = 8·3·4

V = 96 in.³

15. $1^3 + 3^1 + 2^2 - 1^3$

1 + 3 + 4 − 1

4 + 4 − 1

8 − 1 = 7

16. $\frac{6x^{-2}y\,x^5y}{2x^2y}$

Step 1: Move x^{-2} to bottom. $= \frac{6y\,x^5y}{2x^2y\,x^2}$

Step 2: Re-write as list. $\frac{6\cdot y\cdot x\cdot x\cdot x\cdot x\cdot y}{2\cdot x\cdot x\cdot y\cdot x\cdot x} = \frac{6\cdot x\cdot 4}{2} = 3xy$

17. $\frac{3}{2} - \left(\frac{3}{2}\right)^{-1}$

Step 1: Exponent of −1 means "reciprocal"; so flip it.

$\frac{3}{2} - \frac{2}{3} =$

Step 2: common denom. is 6.

$\frac{9}{6} - \frac{4}{6} = \frac{5}{6}$

18. $(4\times10^{-4})(3\times10^{-3})$

Step 1: multiply normal #'s (4·3) = 12

Step 2: add exponents (−4)+(−3) = −7

12×10^{-7}

Step 3: 12 is too big, so rewrite.

1.2×10^{-6}

19. $0.8 + 0.2x = 1.2$

$-0.8 \quad -0.8$

$\frac{0.2}{0.2}x = \frac{0.4}{0.2}$

x = 2

* opposite of add is subtract

* divide.

20. $\frac{7}{8}x + \frac{3}{4} = \frac{9}{8}$

$-\frac{3}{4} = -\frac{6}{8}$

$\frac{7}{8}x = \frac{3}{8}$

* opposite of add is subtract

* Divide by $\frac{7}{8}$

$\frac{3}{8} \div \frac{7}{8} = \frac{3}{8}\cdot\frac{8}{7} = \frac{24}{56} = \frac{3}{7}$