Honors 1 - Algebra Portion Name_____

Semester 2 Practice Test

Factor each completely.

1) $a^2 - 10a$

A) $(a + 2)(a - 9)$
B) Not factorable
C) $(a + 1)(a - 9)$
D) $a(a - 10)$

2) $2x^2 + 11x - 40$

A) $(2x - 5)(x + 8)$
B) $(7x + 1)(x + 8)$
C) $(3x - 4)(x + 8)$
D) $2(x - 5)(x - 4)$

Solve each equation.

3) $5x^2 + 6 = 11$

A) $\{2, -2\}$ B) $\left\{\frac{\sqrt{85}}{5}\right\}$
C) $\{1, -1\}$ D) $\{\sqrt{3}, -\sqrt{3}\}$

4) $7(x - 1)^2 + 4 = 67$

A) {+2, -4} B) {+4, -6}
C) {+4, -2} D) {+4, -4}

5) $m(m + 7) = 0$

A) $\left\{\frac{7}{4}, -7\right\}$ B) $\{-7, 0\}$
C) $\{3, 1\}$ D) $\left\{-\frac{6}{7}, 4\right\}$

6) $2n^2 + 2n - 5 = -n$

A) $\{1, -2.5\}$
B) $\{-4, -5\}$
C) $\{1.844, -10.844\}$
D) $\{5, 4\}$

Identify the vertex of the graph of this function.

7) $y = -4x^2 + 2x - 1$

A) (0.25, -0.75) B) (-2, 8)
C) (-0.5, -1.5) D) (0.25, -5)

State the number of x-intercepts for the graph of the following.

8) $y = -4x^2 + 2x - 1$

A) no solutions
B) Two solutions
C) One solution
D) none of the above

Name the type of function for each equation.

9) $f(x) = -4x + 8$

A) Quadratic
B) Exponential Decay
C) Linear
D) Exponential Growth

10) $f(x) = -2 \cdot 1.2^x$

A) Linear
B) Quadratic
C) Exponential Decay
D) Exponential Growth

Simplify.

11) $\sqrt{20u^3v^5}$

A) $2v^2u\sqrt{5uv}$
B) $5u^2v^2\sqrt{2}$
C) $\sqrt{210}$
D) $6u^2\sqrt{3uv}$

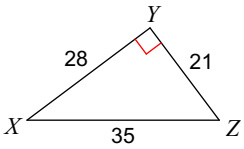
Solve each equation. Remember to check for extraneous solutions.

12) $9 = 1 + \sqrt{b - 3}$

A) $\{-67, 67\}$
B) $\{67, 3\}$
C) $\{3\}$
D) $\{67\}$

Find the value of each trigonometric ratio.

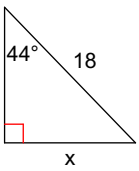
13) $\cos X$



A) $\frac{3}{4}$
B) $\frac{4}{3}$
C) $\frac{3}{5}$
D) $\frac{4}{5}$

Find the missing side. Round to the nearest tenth.

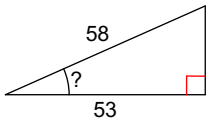
14)



A) 12.5
B) 10.6
C) 11.9
D) 25.9

Find the measure of the indicated angle.

15)



A) 42°
B) 29°
C) 24°
D) 48°

16) State the horizontal and vertical asymptote of $y = \frac{5}{x + 2} - 3$

A) HA: y = -3 VA: x = -2
B) HA: y = 3 VA: x = -2
C) HA: y = 3 VA: x = 2
D) HA: y = 2 VA: x = 3

Simplify each and state the excluded values.

17) $\dfrac{m^2 - 14m + 49}{m^2 - 49}$

A) $\dfrac{m-7}{m+7}$; $\{7, -7\}$

B) $\dfrac{3m}{m+10}$; $\{-10, -9\}$

C) $\dfrac{m+7}{m-7}$; $\{7\}$

D) $\dfrac{m+10}{3m}$; $\{0, -9\}$

18) $\dfrac{x^2 - x - 90}{x^2 - 12x + 20}$

A) $\dfrac{x+9}{x-2}$; $\{10, 2\}$

B) $\dfrac{x-6}{4x}$; $\{0, -8\}$

C) $\dfrac{x-1}{x+4}$; $\{-4\}$

D) $\dfrac{4x}{x-6}$; $\{6, -8\}$

Simplify each expression.

19) $\dfrac{2}{n+7} \div \dfrac{n-6}{n^2 + n - 42}$

A) $n - 3$

B) $\dfrac{n+10}{2}$

C) 2

D) $\dfrac{5}{8}$

20) $\dfrac{2}{n-1} + \dfrac{4n}{n-5}$

A) $\dfrac{-2n - 10 + 4n^2}{(n-5)(n-1)}$

B) $\dfrac{2n + n^2 + 5}{4n(n-1)}$

C) $-\dfrac{3}{5n-1}$

D) $\dfrac{-n^2 + 4n + 5}{4n(n-1)}$

Find the population standard deviation for each data set.

21) Age at First Job

15	17	17	12	14	18	13
13	14	20	22	13	18	11
16	13					

A) 2.29
B) 2.69
C) 2.52
D) 2.98

Find the mean for each data set.

22) Shoe Size

10	5	8	11	10	7	8
8.5	7.5	7.5	8	8.5	8	10
9						

A) 7.73
B) 8.03
C) 8.3
D) 8.4

State if each scenario involves a permutation or a combination. Then find the number of possibilities.

23) Selecting which seven players will be in the batting order on a 12 person team.

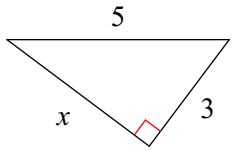
A) Permutation; 596
B) Combination; 792
C) Permutation; 3,991,680
D) Combination; 396

24) There are 40 applicants for three jobs: computer programmer, software tester, and manager.

A) Permutation; 237,120
B) Combination; 29,640
C) Permutation; 59,280
D) Combination; 14,820

Find the missing side of each triangle.

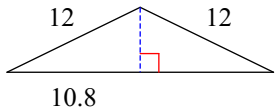
25)



A) 5.8 B) 4
C) 6.4 D) 3

Find the area of the triangle. Round to tenth.

26)



A) 112.3 B) 34.8
C) 173.9 D) 56.2

Determine if the scenario involves mutually exclusive events. Then find the probability.

27) There are eleven shirts in your closet, three blue, three green, and five red. You randomly select one to wear. It is blue or green.

A) Mutually exclusive; $\frac{9}{13} \approx 0.692$
B) Not mutually exclusive; $\frac{5}{6} \approx 0.833$
C) Mutually exclusive; $\frac{8}{13} \approx 0.615$
D) Mutually exclusive; $\frac{6}{11} \approx 0.545$

28) A basket contains six apples and four peaches. Five of the apples and one of the peaches are rotten. You randomly pick a piece of fruit. It is fresh or it is a peach.

A) Mutually exclusive; $\frac{8}{13} \approx 0.615$
B) Not mutually exclusive; $\frac{5}{7} \approx 0.714$
C) Not mutually exclusive; $\frac{1}{2} = 0.5$
D) Not mutually exclusive; $\frac{7}{8} = 0.875$