**Vectors – Honors**

**Vector Quiz Review** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Hour\_\_\_\_\_\_\_Score\_\_\_\_\_\_\_\_\_\_

**Draw the vector described.**

1. $P\_{i}$ (4, 5) $P\_{t}$ (-3, 2) 2. $P\_{i}$ (6, 3) $P\_{t}$ (0, 4) 3. $P\_{i}$ (-3, -6) $P\_{t}$ (-4, 4)

4. 3$\rightharpoonaccent{v}$ 5. ½ $\rightharpoonaccent{v}$ 6. -$\rightharpoonaccent{v}$

7. $\left〈-3,6\right〉$ 8. $\left〈4, 6\right〉$ 9. $\left〈3, -3\right〉$

**Write the component form of each vector.**

10. 11. 12.

**Draw a vector congruent to each indicated vector.**

13. Vector in problem #11 14. Vector in problem #12

15. Find $\left‖v\right‖$ if **v** = $\left〈8, -4\right〉$ 16. Find $\left‖v\right‖$ if its initial point is (3, 5) and its terminal point is (-4, 5).

17. Create two pairs of initial and terminal points that represent the vector **v** = $\left〈3, -5\right〉$.

18. Draw a representation of $\rightharpoonaccent{a }$ +$\rightharpoonaccent{b}$ using the parallelogram rule.

**Given u =** $\left〈-2, 4\right〉$ **and v =** $\left〈3, -2\right〉$ **.**

19. Find $\left‖u+v\right‖$ 20. Find $\left‖u-v\right‖$ 21.Find $\left‖u\right‖$ + $\left‖v\right‖$.

22. Find $\left‖u\right‖$ - $\left‖v\right‖$. 23. Find 6**v** 24. Find -1/2 **v**

25. Find -2**u** 26. Find $\left‖2u+3v\right‖$ 27. Find $\left‖3u-4v\right‖$

**Model each situation with vectors and find the solution.**

28. Suppose a plane is traveling west at 120 km/hr. with a head wind of 30 km/hr. Find the resulting speed of the plane.

29. Suppose a river boat is heading south across a river at a speed of 5m/s. The current of the river is moving at 2 m/s west. Find the resulting speed of the river boat.

30. You are going to swim across a 25 m (0.025 km) river with a current of 6 km/hr. You can swim at 2 km/hr. Estimate how far downstream you are when you reach the other side.

31. You push on a box with a force of 450 newtons directly north. Another pushes the box with a force of 600 newtons directly east. What is the resultant force?

32. On a bike ride Bobbie rides 40 miles west, then 30 miles south, then 25 miles west and finally 40 miles south. Using vectors on a coordinate grid, what was her total displacement in component form?

33. You are on an elevator that is plummeting toward the ground at 32 m/s and you jump up right before it hits the ground. You jump upward with a velocity of 4 m/s. At what speed do you hit the ground?