Name: _____ Date: _____

Flow Rate Worksheet Answers

Solve for the given variable.

1. $V = 17.23\pi(31.573)$

    $V = 1709.035$

2. $556.73 = 804.25v$

    $\dfrac{556.73}{804.25} = v$

    $v = .692$

3. $27 = 12\pi r^2$

    $\dfrac{27}{12\pi} = r^2$

    $r = \sqrt{7.069}$

    $r = 2.66$

4. The diameter of a well head is 12 ft. The oil has a flow rate of 50 g/m..
    What is the velocity of the oil?

    The diameter is 12 feet, therefore it has a radius of 6 feet.

    $50 = \pi(6^2)v$

    $v = 4.36$ meters per minute

5. A garden hose has a diameter of ¾ inch and a velocity of 22.63 inches per minute.
    What is the flow rate of the water in the hose in gallons?

    Diameter is ¾ of an inch; therefore it has a radius of .375 inches.

    $V = (.375)^2(22.63)$

    $V = 3.18$ gallons per minute

6. Water flows through a sewer at a rate of 5 meters per minute with a velocity of .3 m/m.
    What is the diameter of the sewer?

    $5 = .3\pi r^2$

    $r^2 = 52.36$

    $r = \sqrt{52.36}$

    $r = 7.24$

    $diameter = 2r$

    $d = 2(7.24)$

    $d = 14.47$ meters

7. Firemen release the cap of a fire hydrant that is 7 lbs and has an inner circumference of 6.7 inches, in order to allow 7 gallons of water to flow out. After 1 minute the water is 2.75 feet from the base of the fire hydrant. After 4 hours, they replace the cap and shut of the water; the resulting puddle contains 11 gallons of water. What was the flow rate of the water?

D=rt (this is the same as velocity) thus $v = \frac{d}{t}$

$v = 2.75$ feet per minute

Circumference is 6.7, since $C = 2\pi r$, the radius is 10.5

$V = \pi(10.5^2)(2.75)$

$V = 952.49 \, gallons \, per \, minute$